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TABLE OF CONTENTS

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Original Articles.

RESULTS OF TREATMENTS FOR FRACTURES OF CARPAL BONES.*

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WHEN the frequent occurrence of fractures of small bones of wrists was established conclusively by x-rays, renewed interest in injuries to these regions was a natural result; and developmental peculiarities of the carpus, as well as surgical methods of treatment were brought into prominence. Experiences of many surgeons now prove that fragments of fractured carpal bones may be removed often with benefit, although controversies regarding x-ray appearances still prevail. Opinions continue to differ in individual cases as to whether old ununited fractures are present or only developmental variations, failures of fusion of ossification centers, which give divided aspects to scaphoid bones simulating fractures.

Surgical methods have been followed by so many good late results that there is a tendency to turn to them promptly now when diagnoses have been established; but it should be recalled also that many patients recover without operations. It has seemed worth while to the writer to review the facts of the present situation from a series of eighty-one cases collected from the records of the Massachusetts General Hospital. Relative frequencies of different carpal fractures are indicated in the following table, showing that injuries to scaphoid bones are by far the most common lesions.

* Read before the Boston Orthopedic Club, Jan. 15, 1917.

TABLE OF EIGHTY-ONE CASES OF FRACTURED CARPAL BONES.

Simple fracture of scaphoid	64 Cases
Simple fracture of trapezium	2 "
Simple fracture of uncIform	1 Case
Simple fracture of semilunar	1 "
Fracture of scaphoid with fracture of styloid process of radius	3 Cases
Fracture of scaphoid with fracture of styloid process of ulna	2 "
Fracture of scaphoid with dislocation of semilunar	5 "
Fracture of scaphoid with fracture of base of the first metacarpal bone	1 Case
Fracture of scaphoid, fracture of uncIform, fracture of styloid process of ulna, and dislocation of semilunar ..	1 "
Fracture of trapezium with fracture of base of first metacarpal bone	1 "
TOTAL	81 Cases

All patients can be arranged in two groups, namely, those who seek treatment within a few days or weeks, and those who come with histories of troubles which have extended already through many months or years. It happened that half of the cases in the present series, forty in number, sought advice within a week of the time of their injuries.

These early cases were lost sight of usually after a brief period. Ten came only once. They secured x-ray diagnoses, had their wrists protected with splints, and then disappeared. Special interest shown by certain surgeons induced others to return eight or nine times; but three or four visits represent average numbers of hos-

pital treatments received after recent injuries. Seven of the forty early cases returned to the hospital subsequently for other maladies, but none made any further complaint about their wrists. Presumably the majority were relieved promptly, and for this reason did not return; at least, it is safe to say that many simple recent fractures of scaphoid bones without much displacement of the broken fragments, recover with good wrist functions with very little medical care. It is the writer's opinion that subsequent occupational irritations or additional new traumata have very important influences in determining whether or not symptoms subside; also constitutional irregularities have to be considered in some instances.

Not all cases get well quickly, as is shown by fifteen patients in the series, who came first complaining of weakness and disability in their wrists a year or more after their accidents. They presumably represent results of early neglect, or continued occupational irritations, or repeated traumata, or unusually severe initial injuries, or constitutional defects. Some patients fail to recover quickly because of dislocations of bony fragments with dislocations of other carpal bones accompanying scaphoid fractures, which interfere mechanically with normal wrist motions. When these dislocations are irreducible, surgical interference obviously is indicated to remove such mechanical obstructions.

Fourteen of the eighty-one cases in the series, seventeen per cent., were operated on, and six of these reported one year later. The other eight have not been followed, as those who did respond are sufficient to illustrate the points desired; also because Codman,[1] Cotton,[2] Scudder,[3] and others have discussed sufficiently the final results of operations in larger numbers of cases.

CASE REPORTS ONE YEAR AFTER OPERATIONS.

1. A thirty-one-year-old man, who had received an old wrist injury also a recent one three weeks before operation, had half of a scaphoid bone removed. One year later there was considerable improvement in wrist motion; but weakness complained of before surgical treatment continued afterward, and at the end of the year he was not able to do the work he did before his injury.

2. A twenty-five-year-old man, a painter, fell from a scaffolding eight years previously, sustaining a fracture of a scaphoid bone with an accompanying dislocation of the semilunar. He had the displaced fragments removed. The report one year later was that there was very little flexion in the wrist. He had a fairly serviceable hand before and after operation.

3. A thirty-five-year-old man, who had hit his wrist against a broom handle four years previously, complained of numbness and weakness and he had a fragment of bone removed. One year later there was not very great improvement for he still complained of weakness, and was unable then to do his usual work of brass polishing.

4. A thirty-eight-year-old man, a freight handler, fell from a staging one month before operation. The proximal fragment of the scaphoid bone was removed, and one year later there was only slight weakness with slight limitation of wrist motions, and he had resumed his usual occupation.

5. A twenty-one-year-old salesman fell on his hand two years before operation. A fragment of the scaphoid was removed, and the report one year later was that extension of the hand was still somewhat limited. However, he could do his usual work.

6. A twenty-one-year-old teamster fell twenty-five feet two months before operation, and broke a scaphoid bone, also dislocating at the same time the semilunar bone. The proximal fragment of the scaphoid and the dislocated semilunar were removed. One year later there still was local tenderness and weakness with limitation of wrist motions; but the patient said that he was much improved and could do his customary work.

Operations on carpal bones, perfectly done, necessarily are followed by periods of disability and readjustments, because normal relations in wrists are considerably disturbed and because some trauma accompanies surgical removal of the bony fragments. These circumstances are overlooked occasionally and give rise to disappointments over results of surgical methods. Judgments should not be made wholly upon absence or presence of weakness, and limitation of motion after operations, although it is a natural mistake to make these unwarranted conclusions when such defects are seen to persist. Support or condemnation of surgery only should come from comparisons of post-operative with preoperative conditions; patients are pleased sometimes with what appear superficially to be poor results if these changes really represent improvements over former states.

There are no adequate reasons for operative interference in recent scaphoid fractures without displacements of bony fragments. The damage done by surgery in these instances is likely to prove greater than the harm resulting from the original slight accidents which produce the lesions. Surgery is indicated in fractures without displacements only after long periods, when it has become likely that disability will be lengthened more by further delay from chronic irritation than by surgical injury. On the other hand, early surgical intervention is demanded sometimes when initial injuries have been great, and always, as before stated, when irreducible displacements exist.

In passing, it may be well to point out again that a simple fall on an outstretched hand is enough frequently to produce a scaphoid fracture. No crepitus, very slight limitation of wrist motion and very little swelling commonly are accompaniments of simple cases. The positive features may be only a persistent soreness of the wrist on use, a little puffiness at base of the thumb and tenderness over the injured bone.

Nearly all fractured carpal bone injuries become fairly serviceable in the long run whether

wrists are treated or not; at least, individuals learn how to avoid straining the weakened parts, and how to favor limitations so that tenderness and soreness subside enough ultimately to cause no further complaint.

Selection of suitable lengths of time for protection with splints is a feature of practical importance encountered in treatment of early cases. Many patients in the present series were successfully cared for with one month of complete immobilization, followed by massage, exercises and baking. Others, who neglected to return after their first visits, got well without splints if they favored their wrists enough themselves to permit repair to take place, although slight motions were taking place continually. One or two patients wore splints for five or six months without advice, and these were obliged to go through as painful limbering up processes as those who received no protection. There can be little doubt that early passive motions, light massage, and early light use of wrists accelerate recoveries, provided they are gentle enough and graduated to prevent further harmful strains and excessive mechanical irritation. One month of complete immobilization allows reparative processes to become well advanced, and this is not an unreasonably long time, but undoubtedly the period can be shortened safely in selected cases which are under observation. The question whether broken carpal bones ever unite perfectly again by bony union cannot be satisfactorily answered from the present series. It is conceivable that wrists completely immobilized for long periods may yield such a result, but either fibrous union or formation of new false joint surfaces are the usual practical outcomes.

Uncomplicated fractures of other carpal bones act similarly to scaphoid fractures in response to treatments. These patients are soon lost sight of, and presumably their fractured wrists readjust themselves to new changes, so that usefulness is impaired very little. One case of fracture of a trapezium, with an accompanying fracture of the base of the first metacarpal, came for diagnosis six months after the injury. The patient had fallen on the outstretched hand, striking the thumb especially hard, but she had been able to do her usual sewing, in spite of soreness and weakness complained of in the thumb. A removable splint immediately relieved her and she did not return again. Two other cases of fractures of the trapezium were seen early, but both were lost track of after a few days. Each person had his wrist supported by a splint at the time of departure. One isolated fracture of an unciform bone resulted from a direct blow from the sharp edge of a roller skate. This patient disappeared after wearing a splint for two weeks. One case of impacted fracture of a semilunar bone wore a splint plaster cast for several weeks, then failed to return when painful symptoms were subsiding rapidly.

Finally, an additional case will be reported to illustrate minor details and possibilities not spoken of previously:

A middle-aged man, thirty-seven years old, hurt his right wrist about fourteen years before he came for treatment. There had been occasional periods, lasting several weeks at a time, when the wrist had felt sore and weak; but he had worked, however, a number of years as riveter in the Charlestown Navy Yard. This labor included the use of a heavy steam drill weighing twenty-five or thirty pounds. The hands thus were subjected to continual vibrations and many sudden twists. An x-ray taken as soon as he came for treatment revealed an unusually clearly defined fractured right scaphoid, for which a removable wristlet was immediately ordered.

Interpretation of the x-ray was that the fracture represented a very old one without displacement of fragments, and no operation was advised in view of the fact such good function had been possible so many years under exceptionally difficult circumstances. In a month's time all pain and swelling had gone as a result of local protection, cessation of work, and personal hygienic measures. The mechanical support was removed some of the time, and in three months from the time he was first seen he was able to dig a house cellar with his hand partly protected; while a month and a half later he resumed light work in the Navy Yard. He was obliged to give up again a second time after three weeks, on account of the same symptoms of weakness and soreness in the wrist. Another x-ray revealed an unsuspected scaphoid fracture, with dislocation, in the proximal fragment of the already broken bone, which undoubtedly was present when the first plates were taken but overlooked because of the very obvious old break. The new fracture was more easily detected in the last x-ray from slipping of the smaller fragments. A small new lump could be felt near the site of fracture, which corresponds with the displaced fragment seen in the x-ray plate (F^3). On looking back over the history no unusual trauma could be identified with the second break and symptoms had increased without apparent cause two weeks prior to the patient's first appearance at the hospital.

As soreness abated slowly after slipping of the newly-broken piece, it seemed its removal would give quickest recovery and operation was advised. Before this operation he could chop wood, dig clams, and use the wrist as much as needed on some days; but at other periods it became so sore that he could not depend on it. He lost patience, and was willing to take the risk of slow subsidence of soreness after surgical interference.

At operation two small loose bodies (Fig. 4) were taken out, that account for all variations in symptoms complained of. Presumably they got caught at intervals and kept up a chronic irritation as loose bodies in knee joints are known to do. One was smooth, rounded and made of cartilage. The second loose piece was an irregular triangular bony fragment from the scaphoid where it articulated with the radius. These two pieces could be detected in the original x-ray plate next to the articular radial surface, while in Fig. 3 they have worked nearer to the surface as indicated by the outline of F^3, which has been retouched because of the dimness of the shadow.

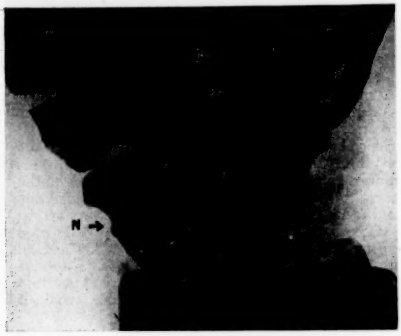

FIG. 1. Left wrist with normal undivided scaphoid bone (N).

Fig. 5 shows the wrist ten days after operation with the same fractured surface of the proximal fragment where it comes in contact with the radius; but haziness produced by loose fragments is no longer observed. Clinical symptoms practically subsided in seventeen days after operation and the patient's hand grip was 90 lbs. in contrast to the grip of the left hand of 100 lbs. Motions of the wrist then were approximately the same as they had been before operation; extension was possible to an angle a few degrees beyond straight, while flexion was practically normal. Adduction and abduction of the hand were normal in range but associated with some weakness. The patient noticed weakness, for example, when rolling a barrel of apples along on end. A fairly serviceable wrist is the result, one about which little complaint is made, yet it cannot be said that the result is perfect, as is sometimes claimed, because only through new adaptations does the restricted wrist become functionally as useful as the other one.

This case is interesting in its first stage, the old, ununited fracture illustrating how useful a wrist may be, and for what length of time

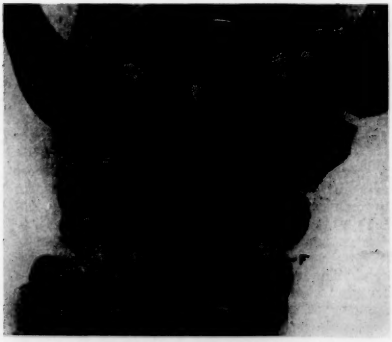

FIG. 2. Right wrist with old fracture of scaphoid bone (F). Between the radius and proximal fragment of the broken scaphoid can be seen the shadow of a small loose "joint mouse."

FIG. 3. Right wrist at a later date immediately before operation. Old fracture at F^1. Recently fractured dislocated fragment at F^2.

under difficult conditions it may continue so without surgical interference, while the second fracture shows that operations sometimes are imperative for restorations of serviceable joints. The two loose bodies found illustrate well the formation of "joint mice" from traumata. The

FIG. 4. Two loose bodies removed at operation from wrist joint. (Natural Size.)

smaller, oval mass was made up of cartilage largely, and presumably was associated with the first fracture; while the larger, irregular piece, which has not become smoothed completely yet, seems of more recent origin, and may have resulted from a locking of the first small fragment

FIG. 5. Right wrist ten days after operation.

in the joint, whereby the second piece was split off. In the latter the smooth covering is so thin that its bony character is apparent. The older fracture is not an anatomic anomaly, as is indicated by the joint mice and also by the undivided scaphoid bone of the other wrist.

CONCLUSIONS.

The very large majority of injuries to carpal bones are fractures of scaphoid bones.

1. Early fractures of scaphoid bones without displacement of fragments should be protected for a short time,—one to four weeks,—then passive and active movements gradually resumed until painful symptoms subside. Such early fractures resulting from slight injuries should not be operated on, because many wrists regain good function with very little medical care.

2. Old ununited fractures of scaphoid bones, without displacement of fragments, however, should be operated on if soreness persists for a long period, or recurs frequently enough to cause serious disability.

3. Occupational elements are important ones in determining subsequent disabilities. Workmen whose occupations compel constant severe use of their wrists will be incapacitated for longer periods than those whose work requires only intermittent light use of wrists, other factors of the situations being equal.

4. The length of time which should be allowed to elapse between injury and time of operation differs widely according to different occupations, different degrees of initial injuries, and varying constitutional conditions of patients. Decisions as to surgical intervention should be made by comparisons of the existing degrees of incapacity with probable results of surgical treatment and its attendant sequelae in form of repair from surgical trauma and the disturbing of normal bony relations of the wrists.

5. Fractures with accompanying irreducible dislocations of semilunar bones should be operated on soon.

6. Perfect restorations of wrist motions after operations appear to be rare, but fairly serviceable wrists ultimately should be expected.

7. Protecting wristlets are useful for patients who are in intermediate stages, or for brief recurrences of symptoms in old cases, if supports are made removable so as to be used to regulate more accurately changing proportions of exercise and rest which have to be made in restorations of normal functions. Wristlets can be employed easily, however, in a way to furnish too much protection, and thus prolong recovery unduly.

8. Fractures of other carpal bones, so far as is known, act similarly to scaphoid fractures, and painless useful wrists presumably are ultimate results in all cases; but too few cases are included in the present series to draw conclusions from.

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[2] Frederic J. Cotton: Dislocations and Joint Fractures. 1911.
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INEBRIETY AND HOW TO CONTROL IT.*

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HABITUAL drunkards are persons who, having a distinctive weakness, may have acquired a disease which makes them incapable of taking continuous care of themselves. This incapacity varies very much according to the individual. The characters of drunkards vary about as much as the characters of other people. Their treatment requires intelligence, medical knowledge, experience and authority, and power and means to keep them under restraint when necessary. Many of these individuals, apart from their habit of drunkenness, are of good repute and, under certain conditions, are capable of earning their livelihood. One type frequently encountered is the middle-aged or elderly man who, in consequence of his excessive drinking, has lost his self-respect and social standing. The family and friends of such a man, after repeated trials at reformation, consider him to have forfeited all his rights and privileges. Such men, if neglected, frequently become outcasts, or institutional rounders. Another class of men demanding institutional care are the delinquents. In such cases the drunkenness is clearly an expression of inborn defectivity. Both of these types, which are extremes, should be early recognized and appropriate care and treatment instituted. It is not enough to dismiss the proposition by saying that they are victims of disease through their own fault, for I fear it is hardly necessary to say to a gathering of this nature that our hospitals are filled by these, many of whom would not be there except through their own fault.

"When we consider habitual or excessive drinkers as a class we find that a large number of them are born with tendencies which make alcohol or some intoxicant their natural resource; as a rule they are naturally highly nervous and through some defect crave abnormally the excitation which alcohol or drugs confer. For these reasons, which mean instability, they are foredoomed to use intoxicants to excess; they are predisposed to drink by an unstable nervous system bequeathed to them by intemperate parents or other ancestors. This

* Read before the Conference of the Massachusetts Society for Mental Hygiene, Ford Hall, Boston, Nov. 18, 1915.

instability, which is a predisposition, antedates the drinking debauches; in other words, the drinking attacks are merely symptoms engrafted on the inherited weakness. These people, then, may be considered as victims of a weakness plus a habit, which, properly speaking, they did not initiate and for which therefore censure must be largely tempered; yet they are generally treated as though they had perversely and deliberately brought about their own condition, a course not more reasonable than the punishment of people for developing an organic disease, such as neuritis, cancer, or tuberculosis."*

Recognizing that inebriety is merely a state of being overcome by intoxicants, we have learned from our experience during the past seven years that our results can be briefly expressed as follows:

1. Inebriety, whether from alcohol or drugs, is an expression of nervous weakness, the nervous weakness being inherited; founded on this weakness is a habit which we call drunkenness.

2. The inebriate is, as it were, the sum total of his personality or make-up, and the symptoms which we call drunkenness.

Inebriety therefore can be considered technically as a disease in the sense above described. The acceptance of this theory implies responsibility on the part of the inebriate, but it admits of extenuating circumstances.

Although habitual drunkenness is generally considered a misdemeanor, its association with criminality and criminal procedure has given the public the impression that the drunkard, if not a criminal in a legal sense, is so closely allied to this class of persons that the measures applicable for the control of the criminal can be consistently used in the management of the inebriate. The impracticability and futility of such methods is recognized by those familiar with the varied types of inebriety. Credit must be given to the judiciary, and particularly to the probation commission of the state, for the heroic efforts which they have made to formulate some satisfactory method of dealing with the chronic inebriate. They have recognized that he has an individuality and they have also observed that he has distinctive peculiarities, but owing to the diversity and apparent complexity of the types and the lack of facilities for studying these cases, they frankly acknowledge their helplessness and are ready and willing to coöperate with the medical profession in any reasonable way that will insure a practical method of handling these cases. The fact that 108,185 arrests for drunkenness were made in Massachusetts in 1914 is certainly a strong appeal for the inauguration of some plan which will individualize, segregate and care for the habitual drunkard.

Unquestionably a state should care for its inebriate class. The evidence is overwhelming that the present punitive system of caring for inebriates in many of our states is both useless and uneconomic. The states in general are gradually seeing the vast economic waste in indiscriminate methods of treatment for drunkenness, and during the past five years special investigations have been instituted in many states for the study of this question.

Boston in a single year spent $210,000 for making 25,000 arrests for drunkenness. The maintenance of those who were incarcerated during the same year cost the city approximately $32,000. All the while this enormous expense tended rather to increase than to decrease the evil. The fact that forty-three per cent. of all arrests for drunkenness in a single year were found to be first offenders is an overwhelming argument in favor of a more humane and a more scientific policy in the way of saving the incipient drunkard to himself, his family and the community.

The sentimental reasons for the state care of the inebriate are convincing and conclusive. The relatives of an habitual drinker, who are often persons of good standing and good repute, are naturally not desirous of having a husband, brother or father sent to a penal institution. The stigma which affects the family of an inebriate thus sentenced is naturally objectionable. Again, the denial of care and scientific treatment to the inebriate is not only unfair to the victim, but is not consistent with the methods which the state employs toward her afflicted and dependent.

In order to give a true definition of inebriety it is necessary that we know something of the nature of the inebriate and perhaps more of the circumstances which led up to his insobriety. It is true that an inebriate is an habitual drinker; not all cases of drunkenness, however, are cases of inebriety, but all confirmed and habitual drinkers of alcohol, or confirmed users of drugs, are generally classed as inebriates. Remembering this, we are prepared to accept the statement that a comparatively small number of the users of alcohol can be said to be inebriates, although to some extent this is true of drug inebriety. There is, however, this essential difference: the greater majority of drug users cannot use drugs in moderation. Every user of alcohol can be classed in one of three categories: First, there are those who are strictly moderate in their indulgence; the persons who can be placed in this class furnish approximately eighty per cent. of all alcohol users. The individuals who use alcohol in this way can be abstinent without the exercise of much self-control; there is therefore no credit due to such persons for being sober. It is no trouble for them to keep sober because they have no desire to be otherwise. In the second category we have those individuals who drink more freely than is consistent with moderation.

* Charles B. Towns, *Century Magazine*, March, 1912.

In this class of alcohol users we come more or less into touch with the inebriate problem. The persons included in this class are those who indulge in excess carelessly or those who show the early symptoms of the development of habitual drunkenness. In the third class we have the habitual drinker or true inebriate.

We may consider that every inebriate is a victim of a constitutional peculiarity or fault of some kind. The peculiarity in question is a frank one calling for recognition of the true inebriate state of which drunkenness and the consequent erratic behavior are merely the outward or visible signs. There are two widely opposite opinions of habitual drunkenness. The modern conception of the condition denoting it a disease has too often been accepted without proper qualifications. Opposed to this opinion, there are those who declare that drunkenness is a habit and that the drinker purposely invites drunkenness, a condition which he could prevent if he so desired. The believers in the theory that drunkenness is a disease declare the alcoholic irresponsible and demand that he be segregated and be compelled to submit to enforced detention and compulsory abstinence. The adherents to what we may call the "habit" theory, who believe the victim of drunknenness to be a slave to his habit, suggest punishment in some form for the offender against society.

The acceptance of either one of these theories of drunkenness implies one remedy, coercion; in other words, the enforcement of punitive measures. The methods of punishment which are prescribed for these individuals show considerable originality and a noticeable lack of uniformity. It is not denied that in some cases of drunkenness such a method has been efficacious, but it is to be questioned whether a true case of inebriety has ever been materially or permanently helped by such a method. It has quite often been said that all inebriates are more or less insane or mentally defective, but it is our opinion that when all inebriates of all social grades are classed together, it will generally be found that the majority are neither defective nor insane. A large percentage of typical drunkards are extremely capable individuals during their sober intervals; contrary to the popular opinion, we find that a great many of these men are skilled workmen and are capable of self-support under direction and control.

We must recognize, broadly speaking, two classes of inebriates: one class are responsive to the efforts made to cure them, while the other class will not, or cannot, respond to treatment. When we speak of inebriates we can roughly class them accordingly. It is at once apparent that the ordinary hospital curative methods are not sufficient for the persistent habitual drinker; he should be carefully segregated and treated. Our experience justifies us in saying that if placed under proper conditions a surprisingly large percentage of these so-called "incorrigibles" will react favorably to treatment.

During the past five years several legislative commissions have reported on drunkenness in Massachusetts. Their published results are incorporated in legislative documents, and the conclusions have been arrived at after statewide and general investigation.

Any program to better conditions and to lessen the cost to the state must consider not only cure, but prevention. Prevention should take precedence over cure at every point in a rational medical-social study for the control of drunkenness. The Commission to Investigate Drunkenness in Massachusetts, which reported to the Legislature of 1914, gave in detail the seven fundamental ways in which this Commonwealth might reduce drunkenness from a preventive standpoint. These results, although applying particularly to drunkenness from alcohol, are referable to inebriety from the use and abuse of any intoxicant.

1. By state-wide prohibition of liquor traffic, to which might be added federal prohibition.
2. By the elimination of private profit in the sale of intoxicating liquors.
3. By more thorough enforcement of existing legislation regarding the sale of liquors.
4. By amendments to existing liquor laws.
5. By increasing and improving public instruction on temperance and the evils of excessive drinking.
6. By competing with saloons and rendezvous through public provision of wholesome recreation for all persons.
7. By the gradual elimination of those factors in the environment and heredity of the individual which may predispose him to the excessive use of alcohol or drugs.

Many of these recommendations have formerly been advanced and have been thoroughly discussed pro and con. Some of the methods suggested have been used in other states; it is yet too early to report with any finality on the success or ill-success of such legislation.

Certain definite measures for the cure and amelioration of inebriety are practical immediately, however, and to this end we believe it necessary, first, to discover the curable inebriate and give him specialized treatment; second, to place the incurable inebriate where he may work continuously for his own support, and where he will not endanger society, or, on the other hand, come unnecessarily in contact with criminals; third, to modify, when necessary, the present state statutes in order to facilitate such division, special treatment and segregation.

Recognizing the feasibility of an institution which would have adequate facilities for carrying out a definite program for the treatment of inebriety, Massachusetts has developed a

plan, now in active operation, which can be described as follows: First, a state hospital for the treatment of alcoholic and drug habitués, developed on the colony plan with an equipment sufficiently ample and flexible so that appropriate care and treatment can be given to the different types of inebriety; second, an out-patient department and clinic with broad and well-defined duties; third, detention hospitals and hospital clinics having specialized features for the care and treatment of cases of acute alcoholism. A substantial start has been made. The central state institution has been in part built, out-patient departments have been established and the coöperation of the hospitals is assured. To the trustees and those of us who are interested in the proposition the real incentive for the continuation of our work is our conviction that the public believes in the integrity and stability of the system as planned six years ago.

I feel that my paper would be incomplete if I failed to describe the method of treatment in use at the hospital. Believing as we do, that the inebriate condition has for its basis a distorted mentalization, our efforts are directed towards interesting the patient in his individual case, and having accomplished this, towards making the interest self-sustaining. Our experience has shown us that the success of hospital treatment depends upon:

(*a*) The ability of the patient to coöperate in treatment.

(*b*) Our ability to introduce into the patient's mentality some tangible substitute for the desire for artificial stimulation.

Success is brought about by attention to the patient's mental and physical hygiene, and necessarily depends on the educational measures inaugurated at the hospital and continued by the patient after he leaves the institution. The treatment must necessarily be considered as in the realm of physiologic therapeutics, supplemented by the simplest form of suggestion. The suggestion is really an auto-suggestion, the result of a correlation of impressions which the patient receives from his association with the physicians and from his relation to the hospital environment. The physician is concerned in an analysis of the individual case, which is made possible by encouraging the patient to coöperate in his own recovery, by strengthening his self-control.

This brief description of the method of treatment of inebriety presupposes what seems to be the absolute fact, that there is no known specific for the treatment of chronic alcoholism; in other words, there is no known drug that will cure inebriety. We must recognize that habitual drunkenness, as we see it in the inebriate, has a mental and physical side which requires distinctive and specialized treatment.

Any plan which is put into practice for the treatment or amelioration of drunkenness should be controlled and administered by the state. The magnitude of the problem and the closely interwoven economic questions argue against local or municipal control.

The successful care and treatment of inebriety demands the inauguration of a definite policy which includes both institutional and non-institutional departments, both of these departments being inter-related. The institution, which is the fountain-head of the system, demands first consideration.

On the threshold of our contemplated plan for the practical care of the habitual drunkard, it appeared to us that our work should be directed: first, to the extension of individual treatment of cases; second, to securing remunerative employment for cases which were under our care and treatment; third, to compiling accurate histories of those who had been discharged from the hospital; fourth, the establishment of after-care as an integral part of the hospital.

It is therefore at once apparent that something more than the mere housing of the individual is needed. An institution for the purpose must be adaptable; it must have distinctive qualities and be especially built and equipped for the class of persons for which it is intended. Conditions are required which represent departures from the character of an ordinary institution. Lastly, the institution should be so constructed that it can adequately treat the varied types of inebriety committed to its care. The requisites of such an institution are:

(a) A sufficient area of land to provide for agricultural development and for outside employment for the patients.

(b) Sufficient plant for industrial training.

(c) A tract of land of sufficient continuity so that there will be an opportunity for the segregation of the diverse cases.

(d) Adequate provision for both male and female inebriates.

Acting on these principles a large tract of land was purchased in Massachusetts. The area selected has natural advantages. The land is largely undeveloped, thus allowing for considerable work for the inmates and affording an opportunity for affiliation and coöperation with the forestry, agricultural and other state commissions. This coöperation, in our estimation, is an essential part of our education scheme and has been conducive to economies which have been helpful in the building and equipment of the plant. The acreage, over one thousand acres, corresponds to the requirements just enumerated. The cottage, or colony, is the pivot center of our scheme. Three different colonies are contemplated; first, a hospital colony for men, which will take care of the hopeful cases; second, a detention farm colony which will provide for the more chronic and resistive type of patients; third, a hospital for women.

Out-patient work on broad and well defined lines is an essential part of the treatment. Extensions to this work are being rapidly made and it is hoped within a short time that there will be established a state-wide representation of this department. By means of the out-patient department we have been able to coöperate with 5031 discharged patients who have left the hospital during the five-year period from October 1st, 1909, to October 1st, 1915. Of this total number 1179, or 23%, are abstinent, or so far improved that they are self-respecting and earning their livelihood.

The Norfolk State Hospital, therefore, can be considered as the hub, the out-patient departments and coöperative interests as the spokes, of the wheel. The wheel can efficiently revolve only when the spokes are in accurate adjustment with the hub. The success of the hospital depends upon coöperation, which means both the coöperation of the patient with the hospital authorities and the coöperation of those interested with the hospital.

It seems superfluous for me to say that the successful management of any case of drunkenness depends on a painstaking and thorough medical and social survey. Institutional treatment, although often necessary, may really be of minor importance in some cases; indeed, I may state with considerable conviction that in many cases prolonged institution care may postpone or defeat the desired result.

It is a popular opinion, which fortunately is now in its decadence, that all cases of drunkenness are amenable to cure, the word "cure" being used relatively. While in a limited sense this is true, for all cases need consideration, it must be acknowledged that permanent abstinence cannot be expected in all cases. It is my belief that all habitual drunkards should receive expert and specialized consideration; in this way we may prevent grievous errors from developing and determine the relation of the delinquent to his family and the community.

The facts, as above stated, necessarily establish a truism, that the probability of permanent improvement is far better if the treatment is instituted in the early stages of the condition. I most earnestly request that individuals be sent to us before the victim is overcome by the mental and physical complications which so often are found in elderly subjects and confirmed drunkards.

The relation of the hospital to the public may be tersely expressed as follows:

1. The hospital, having the necessary equipment and specialized training, offers to the public a human laboratory, if I may so express it, which will help to solve some of the problems connected with the drunkard.

2. The public, by taking advantage of such opportunity, is not only benefiting the individual in accord with the laws of humanity, but is pursuing a course which is eminently economical and practical,—a method which is far more satisfactory than any plan which has heretofore been proposed.

INTRATHORACIC GOITRE.

By Frank H. Lahey, M.D., Boston.

There is no disease of the thyroid so often overlooked by the physician or surgeon unfamiliar with thyroid diseases as substernal or intrathoracic goitre. Nearly every physician familiar with the benefits derived from surgical intervention in exophthalmic goitre, is familiar with the diagnosis of that disease. Cysts and adenomata of the thyroid occurring as frank tumors on the neck are of course so self-evident that they cannot be mistaken. Substernal or intrathoracic goitres, on the other hand, present difficulties in diagnosis apparently in inverse proportion to the degree of prominence of the upper pole of the tumor.

Substernal or intrathoracic goitres are either adenomata or cysts, originating in the right or left lower pole or isthmus of the thyroid, and gradually enlarging downward into the thorax along the path of least resistance.

There are two factors entering into the production of the intrathoracic growth of goitre. One is the fact that downward and into the chest is the path of least resistance for these growths originating at the lower poles of the gland. This is clearly demonstrated in the diagrammatic drawing (Figure 1) in which it may be seen that extension backward is limited by the trachea; forward, by the sternothyroid muscles. Note further in this figure that the attachment of the sterno-thyroid muscle is not at the top of the sternum, but on its posterior surface, an arrangement best suited to guide into the thorax any adenoma or cyst with a tendency to become intrathoracic. Lateral extension, as may be seen in Figure 2, is limited by the sterno-mastoids and scaleni muscles, the great vessels, and by the backward limiting curves of the clavicle and first rib.

The second factor in the production of intrathoracic goitres is the upward and downward motion of the thyroid gland in deglutition. Again referring to Figure 1, it may be seen, with the occurrence of an adenoma or cyst on the inferior edge of the thyroid, how each act of swallowing moulds a bed in the downward direction for the growth. This figure further illustrates how, when the tumor or cyst has already become intrathoracic, the natural moulding of the mass will be more or less roughly into the shape of a pear, with the larger portion within the chest, no matter how general the development of the tumor may be.

If the greater part of the tumor be above the

sternal notch or either clavicle, attention of course is at once directed to it as a possible cause in the production of attacks of suffocation, interference with swallowing, or huskiness of the voice. If, on the other hand, more than half of the tumor be within the thoracic cavity, it may either be overlooked or the visible portion be considered a tumor in itself too small to be a causative factor in the production of any of the foregoing symptoms. It is the author's opinion that the fact that these symptoms are frequently the result of intrathoracic goitres has not been sufficiently impressed upon, or made clear to, the physicians whom these patients first consult for what is apparently a trivial ailment.

Intrathoracic goitres are by no means uncommon in the practice of a surgeon who is seeing and operating upon goitres constantly. They of course vary from the type in which only the lower pole of a cyst or adenoma dips into the chest, up to that type represented by a case recently operated by the author. The goitre was completely intrathoracic, four inches in diameter, showing nothing upon the neck, and the trachea was dislocated so that it formed almost a half-circle. This case required that the sternum be split and separated before the upper aperture of the thorax could be made large enough to permit the exit of the goitre from the chest.

The symptoms produced by these goitres are a feeling of pressure beneath the sternum on swallowing; the uncomfortable feeling of the mass ascending and descending as it does on swallowing; huskiness of the voice; dyspnoea of greater or less degree, depending upon the size and situation of the tumor; and intermittent attacks of suffocation. The last symptom, intermittent suffocation, has occurred in two of the author's cases, both of which were large intrathoracic cysts which must have had the faculty of suddenly distending to sufficient size to produce partial, and in one case almost complete, respiratory obstruction, as in both cases mild attacks similar to the ones necessitating operation had occurred and been recovered from without sur-

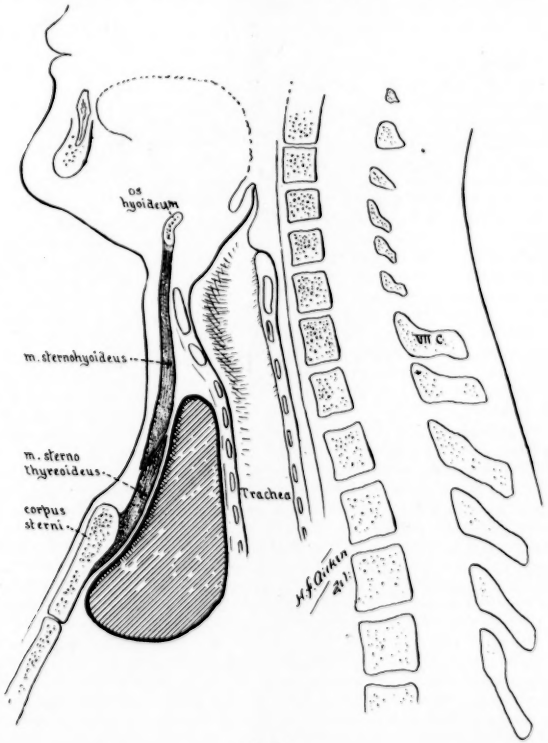

FIG. 1.

gical intervention. In the latter case the operation was done as an emergency one, the patient being unconscious, and the cyst walls were found tensely stretched with the contents under great pressure. Puncture of the cyst immediately produced complete relief from the obstruction and permitted careful and deliberate dissection and removal of the sac of the cyst.

One should suspect intrathoracic goitre in a patient presenting any of the before-mentioned symptoms. It should also be suspected in some cases of asthma. In the case mentioned above, which required splitting of the sternum for the removal of the goitre, the patient had been treated for a considerable period of time for asthma, even to having his turbinates removed by a rhinologist, before coming into the author's hands.

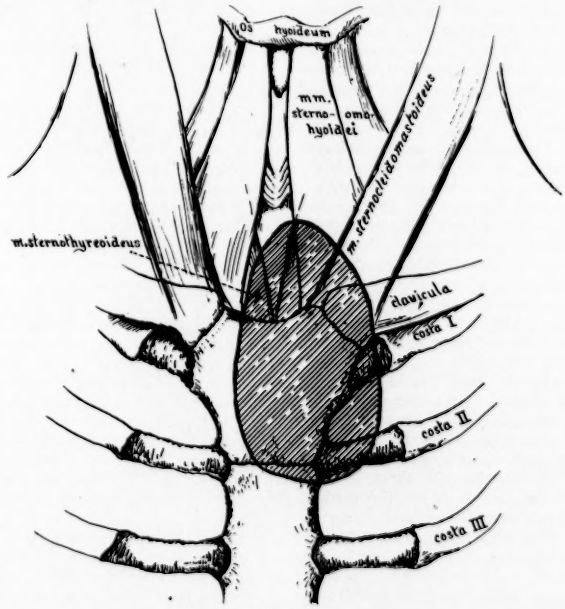

Fig. 2.

The condition being suspected, the diagnosis may be made by the demonstration of abnormal dullness over the upper part of the chest, by the demonstration of the tumor mass within the chest by the X-ray, and by the inability to demonstrate the inferior pole of either side with the palpating finger. A manoeuvre for demonstrating the inferior poles was hit upon by the author a few years ago, and has been found to be of the greatest value in the diagnosis of this condition. After examining a number of thyroid glands, one soon becomes able with the patient's chin depressed upon the chest, distinctly to palpate the lower poles of the thyroid as the patient swallows. It is at once evident that if an inferior pole on one side is readily palpable, and that of the opposite side not, the diagnosis is definite, even though no swelling be present on the neck.

The operative treatment resolves itself merely into the mechanical problem of elevating the buried mass out of the chest upon the neck. These goitres must be delivered *in toto* and never by morcellation or piecemeal, as the latter method results first in severe oozing, which can be controlled only by ligature of the main blood supply to the tumor, and secondly, in leaving well-nourished segments of the tumor behind, from which further intrathoracic growth may occur.

The difficulty of the procedure of elevation depends entirely upon how deeply located the tumor may be, and whether or not the intrathoracic portion of the mass is too large to pass through the upper aperture of the thorax. If the mass be too large to permit of extraction from the chest, the manoeuvre practised by the author in the above-mentioned case may be made use of. A long, straight incision over the middle of the sternum may be carried from the center of the curved goitre incision down nearly to the tip of the sternum, the periosteum and apo-

neurosis freed from the bone, and with a sharp chisel the sternum split from top to bottom. After splitting the sternum a blunt instrument, such as a periosteal elevator or narrow-bladed retractor may be inserted into the crevice in the bone and turned at right angles, acting then in the nature of a wedge. If the finger is then inserted behind the upper portion of the sternum, a taut ligament, the interclavicular ligament, may be felt running between the two sterno-clavicular articulations and preventing further spreading of the sternal fragments. This is easily cut with the point of a sharp knife. Successive wedges may then be inserted until the upper thoracic aperture is of sufficient diameter to allow the escape of the tumor.

Fortunately these intrathoracic growths, unless malignant, are well encapsulated and are so loosely adherent to surrounding structures that they may easily be freed by sweeping the index finger around them.

It is the author's preference when possible to pry these goitres out of the chest by gradually working the index finger-tip down one side of the tumor and then beneath it. In this way there is no danger of rupturing the tumor, and it is delivered whole upon the neck, where its blood supply may be comfortably and safely controlled. When, on account of the depth of the tumor, it is impossible to insinuate the finger-tip beneath the goitre, it then becomes necessary to pull it out from its bed by dragging upon its upper pole with hemostats or double hooks clamped into that portion. This in itself will not be successful unless the greater part of the goitre has been liberated from its surrounding structures by sweeping the finger around it, and by continuing to do so as the goitre gradually ascends from its bed within the chest.

This method is inferior to the prying method, first because of the danger of rupturing the goitre if it be a cyst, making the removal of its secreting walls difficult; and secondly, because of the danger of fracture, breaking up, and oozing of an adenoma, unless it frees easily from its surrounding structures.

Prying out is superior to dragging out, because it is necessarily true that with the former method, if the finger-tip is able to reach the bottom of the tumor, all adhesions around the tumor have been broken up. With the latter method, the fact that it is impossible to reach the bottom makes it necessarily true that the tumor is fixed by adhesions below the lowest point reached by the finger.

The tumor delivered upon the neck, control of the blood supply at once becomes easy. If reference is made to Figure 3, illustrating the downward course of the inferior thyroid artery (in the minds of many it is thought to ascend as does the thyroidea ima when present) it will be seen that the tumor as it lies upon the neck must perforce have a long vascular pedicle, since for each fraction of an inch that the goitre descends into the chest, the same distance must be added to its vessels by the stretching of both superior and inferior thyroid, descending as they do from above downward. Thus, with the tumor delivered, clamps may be applied to the vascular pedicle, care being taken to apply them as close to the gland as possible to avoid the recurrent laryngeal nerve, which may either run through the vascular pedicle or have been pushed to one side. All oozing is carefully controlled, a cigarette or rubber dam drain inserted, and the wound sutured as in all goitre operations. The drain is removed on the fourth or fifth day and further drains of rubber dam inserted until the cavity has been obliterated.

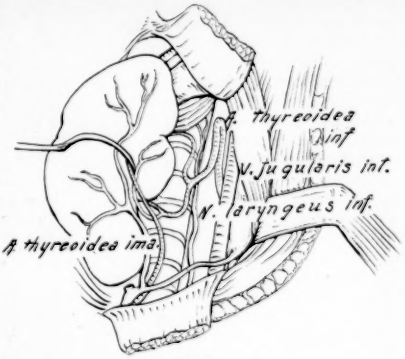

FIG. 3.

The author has found that the form of anaesthesia practised by him in all goitre operations as far as possible,—that is, morphia, scopolamine and novocaine,— has been the ideal anaesthesia. With ether, breathing may be difficult and oozing is certainly more profuse.

Intratracheal anaesthesia was necessary in the case in which the sternum was split, as chiseling of bone does not fall within the domain of local anaesthesia, and further because the laryngologists had reported marked narrowing of the trachea, suggesting the possibility of collapse of that structure from the intrathoracic manipulations.

INCREASE IN REQUIREMENTS AT COLUMBIA.—It is announced that additional requirements will be included in the two-year collegiate course preliminary to the medical course in Columbia University. Courses in chemistry will be added so that instead of seventy-two entrance points being required, an equivalent of eighteen full months of academic work will be necessary. It is contemplated, as soon as proper hospital facilities can be procured, to add another year to the medical course to include a hospital interneship.

SUPPURATIVE LABYRINTHITIS: A CRITICAL REVIEW OF ITS DIAGNOSIS AND TREATMENT.*

BY ARTHUR B. DUEL, M.D., F.A.C.S., NEW YORK CITY.

ALTHOUGH the subject of orientation and equilibration, and the intimate connection of the vestibular apparatus with this function, have occupied the attention of otologists for more than a century; and although much of the most important experimental work connected with it was done thirty or forty years ago; the surgery of the internal ear lesions resulting from inflammatory invasion has been developed well within the past two decades. I remember in the course of a summer in Berlin, about fifteen years ago, seeing the operation for suppurative labyrinthitis performed by Dr. Jansen on two chronic cases and one acute case. At that time the test for loss of hearing was very inadequate, and no one had suggested separate examination of the vestibular apparatuses. I recall that the operations impressed me with the importance of more careful anatomical study of the petrous bone with reference to operative work, and that the technic of the operation interested me much more seriously than the diagnosis or the indications for operation.

It was not until Bárány, about ten years ago, presented the noise apparatus, which enables one quickly and positively to demonstrate complete loss of hearing; and the caloric reaction, which enables one separately to test the presence or absence of the static function in each ear, that surgery of the labyrinth was placed upon its present sound footing. Compared with all other means for determining the necessity of surgical interference in the internal ear, these two tests stand out in paramount importance. Indeed, in my own opinion, they are the only necessary functional tests. While the other functional tests, like whirling, and the galvanic current, are interesting and useful in clarifying our minds regarding the static function, and therefore valuable in demonstrating certain reactions, in the study of the subject, when we get down to an actual clinical case on which the question of surgical interference is to be settled, they are, to my mind, useless in comparison with the ones first mentioned. This is due to the fact that the *whirling test* can never cause a reaction in one vestibular apparatus at a time, provided that both are functionating; and despite the fact that an imbalance of the two apparatuses may be demonstrated, by the after-nystagmus resulting on turning, first in one direction and then in the other, it is well known that compensation takes place, sometimes in a longer, sometimes in a shorter, period after complete destruction of one side, and therefore a negative result will never be convincing. I believe it is absolutely useless in acute cases when a spontaneous nystagmus is present; and that it may be so in the chronic cases, owing to partial or complete compensation by the sound side. It seems useless in the acute cases because, with an imbalance sufficient to have caused the spontaneous nystagmus, the added confusion of the whirling brings out only phenomena which it is almost impossible to observe accurately. From another point of view, even if the information gained should be accurate, it seems hardly wise to jeopardize the chances of recovery of so ill a patient by subjecting him to this additional insult when a much more positive test (the caloric) may be used with comparatively little discomfort. The whirling chair, then, in my opinion, should be relegated to the armamentarium of those who are teaching or studying the phenomena of static equilibrium, and should be discarded as a positive diagnostic factor in labyrinthine surgery. No one would think of not verifying its positive indications by the more accurate caloric test, and no one should accept its negative indications as being of any particular value.

The galvanic reaction, while it enables one to test each labyrinth separately, is confusing from the fact that it may excite reactions by stimulating the vestibular nerve-trunk, even when the end organ is not functionating. It is, therefore, in my opinion, useless except for the teacher or student, and is of no positive aid in determining the necessity for surgical interference, as compared with the caloric reaction.

These two tests stand in relation to the surgical diagnosis of labyrinthine involvement in about the same importance that transillumination occupies in the diagnosis of accessory sinusitis. Transillumination may be of positive value or it may not; in these days of radiography, no one would think of accepting its most positive indication without the confirmation of a radiogram.

The "fistula test" may be positive in the absence of a positive caloric reaction, or it may be negative in the presence of a positive caloric reaction. This, of course, will depend on whether there is a fistula present or not, and whether there is a vestibular function present, or not; but one will seldom find the caloric test negative, although it may be delayed or weak; the fistula test is positive, while the fistula test, even in the presence of a fistula, has no diagnostic value unless it is positive.

There is another important factor in connection with this test—and since I am on the subject I may as well finish it now, although it may be somewhat out of place. The fistula symptom is present only in cases in which a suppurative process has extended to the membranous labyrinth, either by erosion of bone, by a necrotic process, or by extension through a dehiscence in the bony capsule. We seek for it in cases in which the symptoms point to a lesion which has

* Read at the meeting of the New England Otological, Laryngological and Rhinological Society, Boston, Nov. 23, 1916.

not invaded the endolymph. This is in a type of cases (the so-called "circumscribed") which often suddenly become active, acute, and develop into the most serious complete endo-labyrinthine involvement. When we find a fistula during the course of an operation, every surgical instinct urges us not to probe or in any way exert the slightest pressure or traumatism on the fistula, and we so instruct our students. (This applies to cases where a functionating labyrinth has been demonstrated). Under these circumstances, who can say that the fistula test, once applied, may not be the cause of converting a peri-labyrinthitis into an "acute diffuse suppurative one?" The pneumatic pressure necessary to bring about the reaction cannot be calculated to fit all cases, and certainly the fistula test, applied as we usually see it, is quite as dangerous to the welfare of the patient as the probing or curetting during an operation,—which we all abjure with such holy horror.

If the caloric test is positive, then, or can be demonstrated in even its weakest degree, one can well afford, in the interest of the patient, to wait and discover by inspection, at the time of a radical operation, whether or not a fistula is present. If the caloric test is negative,—hearing also being entirely ablated,—there may be a slight justification in applying a fistula test to determine whether or not there is any remaining vestibular reaction. With any hearing present, however, there is sufficient contraindication to operative interference on the labyrinth to make the fistula test unnecessary, since at the time of the radical operation this can be determined by actual inspection. Here again, then, a test which is interesting and often very illuminating can only be practiced with certainly always a slight, and in many cases a grave, danger to the patient. If this test is used at all, it should be undertaken with great care, using the slightest pressure at first, and only increasing it, on negative results, up to a point which the investigator thinks (it must be guessed at) would not be sufficient to break through the possibly weakened membranous labyrinth wall. Having once demonstrated the presence of a fistula by this method, I consider it very bad practice to go on demonstrating it repeatedly, as we often see done for the illumination of one surgeon after another, in both hospital and private practice. The life of the patient with such a lesion is so seriously menaced, by possible extension into fatal areas by the experiment, that one should—if he attempts it at all—record the result once for all time.

This leads me into another digression. Much of the experimentation or demonstration of various interesting phenomena connected with an inflammatory involvement of the labyrinth might, in the interest of the patient, be well taken for granted. For example: as I have just said, if one will make use of a dangerous fistula test, he might at least be considerate enough, if positive, not to repeat it. If a patient suffering with an acute labyrinthitis has manifested symptoms which show that both the hearing and static sense are ablated, one may as well take it for granted that if made to stand he will fall toward the side of the lesion; that if whirled, he will probably show certain well-known reactions; that if moved about, he will exhibit nausea and vomiting. Now, in most of the cases reported we see the results of these various tests recorded. We all know that these phenomena would have occurred, and the man who has demonstrated them again has in many instances done so to the detriment of his patient; for we know that perfect quiet is very essential to the prevention of extension from an endo-labyrinthine lesion to the meninges, and may be so for the prevention of an extension from a peri- or para-labyrinthitis into the endolymph. To say in one breath that a patient should avoid undue excitement and any action which might jar the delicate barriers which nature is attempting to erect to prevent extension to the meninges; and in the next breath to take such a patient out of bed to demonstrate that he will fall in a certain direction on attempting to stand or walk, or that he will show certain reactions to the insult of whirling him in a revolving chair; or even to stirring him about in bed, or having him sit up in order to demonstrate a difference in the direction of nystagmic movements; or to provoke nausea and vomiting; is, to my mind, an exhibition of bad judgment, or bad practice in the management of the case.

All these questions of whether the patient will fall in a given direction or react to certain experiments, have been settled; we know they will do it. If that is unknown ground to anyone, he should either accept it as a fact established by others, or learn it for himself on chronic cases, operated cases, and animals, rather than by demonstrating it by experiments on his acute case in which the demonstration may be the last straw which "breaks his camel's back."

This leads me to another somewhat critical position regarding the clinical diagnosis of labyrinthitis. We are deeply indebted to the Vienna school for their painstaking efforts to record the last detail of their cases, for their enthusiastic rivalry to present some new phase of an intricate subject, or some added factor in the differential diagnosis of the various types of labyrinthine inflammation. Their efforts to subdivide their cases and reduce each one to its lowest terms have been due in part, I think, to a desire to present a fixed or standardized formula, with definite symptoms for each, and a definite treatment for each. This might at first thought seem to simplify the matter for students; but I believe that instead of accomplishing this object they have unnecessarily complicated the question, and have led those who approached their first cases of labyrinthitis into a

feeling of bewilderment lest on the one hand, they should misinterpret the clinical symptoms and be led into performing an unwarranted operation, or on the other hand be influenced into too long deferring a necessary one. The cases I am speaking of are all those which have resulted from a suppuration in the middle ear.

The question which confronts one in such a case is: Is this acute or chronic? We know that no acute case of labyrinthitis can be present without manifest symptoms. We must remember that symptoms of an acute labyrinthitis may be present in either an acute or a chronic suppurative otitis. The first evidences of an acute inflammatory involvement of the labyrinth are: impairment or loss of hearing, and tinnitus aurium from involvement of the cochlear apparatus; and loss of equilibrium, vertigo, nausea and vomiting, and nystagmus resulting from loss or impairment of the vestibular apparatus. Either one or both of these impairments or loss of function may be present in any acute case. If either function is present in any degree, it is safe to say that an acute suppurative endo-labyrinthitis, at least of an operative character, is not present at that moment. If both functions are ablated, the case may or may not be one of acute suppurative endo-labyrinthitis. If the loss of function has been very rapid (within a few hours) following a virulent acute suppurative otitis, or following the fistula test, or any operative interference in a case in which there has been a peri-labyrinthine inflammation, the chances are greatly in favor of the lesion being an acute suppurative endo-labyrinthitis. If such is the case, there will be no return of function, even though the case recovers without operation. On the other hand, if the loss of function came on slowly, with irritative symptoms showing first for a number of hours, or days, or weeks, there may be an eventual complete loss of both functions, followed by final recovery or partial recovery of one or both, provided the labyrinth is not operated.

It can be readily seen from these incontrovertible facts, that in any case of acute labyrinthitis we are brought face to face with the question of whether or not we shall operate upon a case which is in imminent danger of an intracranial involvement. The clinical symptoms from which we are able to elucidate the question may be identical, and if all cases were operated upon to relieve such symptoms there would undoubtedly be some which had they been let alone would have recovered with considerable function; on the other hand, some might be caught at the proper moment and drained with sufficient skill to prevent an intracranial involvement; on still another hand, there would undoubtedly be some cases in which the operative interference itself would precipitate the very cataclysm which the operator was endeavoring to avert. By this, I mean that the excavation of bone necessary to accomplish the drainage — removed in the most ideal method imaginable—cannot help but be a menace to the delicate fabric which nature in every such case is attempting to erect between the meninges and the infected area. The thought of this great danger of traumatic production of the very mischief one is trying to avert, has been growing upon me for years, and although I have carefully avoided employing mallet and chisel,—the use of which I consider extremely bad technic on account of the violent concussion,—I still feel that in these acute cases even the most careful excavation by the use of rongeurs, curettes, and drills will, in a slight degree, present the same possible danger.

Under these circumstances, I am strongly of the opinion that any acute labyrinthitis showing no symptoms outside of the labyrinth stands a better chance of recovery unoperated until the acute symptoms have subsided. This may mean —depending upon the condition of the mastoid —a few days or a few months, or for all time. During this stage of acute symptoms, the endeavor should be to secure complete rest for the patient. If there were a question of whether I would operate on such a patient, or not operate, and in the meantime subject him to the insults to which he is usually subjected,—I should say by all means operate. I mean by this, that to take such a patient and stand him up, or ask him to endeavor to walk, to note which way he falls; or to have him sit up in bed and put him through hot and cold water irrigations; or to put him in a whirling chair and revolve him several times in each direction; or in any way to disturb him so as to provoke the violent vomiting which such patients are likely to have at that time, is quite as likely to add the traumatic shock which might break down the barrier to the meninges as a carefully wrought operation, but without presenting him at the same time with the advantages which the drainage afforded by the operation would provide.

Now, what symptoms are necessary to hold us in this waiting position?

Just two. First, loss of hearing. How is this demonstrated? With a suitable noise apparatus shutting out the sound side, the patient is unable to hear shouted words or a Galton whistle.

Second, he has a nystagmus of the vestibular type,—the slow movement of which is toward the diseased ear. (I shall speak more at length on this symptom a few moments later.) It does not matter whether the nystagmus is horizontal or rotatory in character,—you simply wish to know if a nystagmus characterized by a slow movement in one direction is followed by a rapid movement in the other direction. If the slow movement is toward the diseased side (it is always sure to be, if the hearing is ablated), it is the result of a great impairment or a complete loss of function on the diseased side. If

once or twice in your lifetime you see the slow movement away from the diseased side, with quick recovery toward it, you may be certain that the labyrinth on the affected side is functionating; that the nystagmus is the result of stimulation; and that the case has no question of an immediate operation in sight, because there can be no endo-labyrinthitis present. In such a case, there would also almost certainly be some hearing present.

We all know that the acute symptoms in such cases rapidly subside. The function—hearing, static sense—may partly recover, entirely recover, or be completely lost. This applies to one or both senses. In the meantime, the condition which will be left in the labyrinth, depends upon what sort of resolution is taking place. Of course, the cases which recover function have not had a suppurative invasion of the endolymph. It is even possible that some of the cases which recover with loss of function may not have had a suppurative endo-labyrinthitis. This is drawing pretty fine, however, as all of them have had an inflammatory invasion of the labyrinthine walls sufficient to impair or completely destroy the function of the delicate end organs in the cochlear and vestibular apparatus. The distinction only indicates how imminent meningeal involvement had been. There is no way of knowing which is present at the time. The case will either have recovered with or without function, or will have rapidly passed into what, for all practical purposes, may be considered a chronic labyrinthitis.

What symptoms during this anxious period of waiting should lead one to operate?

First: a temperature of over 100°, accompanied by headache, photophobia, exaggerated reflexes, a positive Kernig, might be an indication that a beginning meningeal irritation was taking place, and no one should hesitate for a moment to operate, if a lumbar puncture verified the suspicion,—not only draining the labyrinth spaces but also uncovering and incising the dura as nearly as possible at the external auditory meatus, and possibly over the tempero-sphenoidal lobe as well. This operation would be done not alone for the labyrinthitis, but also for a beginning meningitis which had not been averted by zealous care and watchfulness.

Another situation might be present which would present some of these symptoms and which might justify an operation in the midst of an acute labyrinthitis, but which might not demand an invasion of the labyrinth. This situation is more likely to arise in an acute labyrinthitis coming rapidly on top of an acute otitis before or without any clinical evidence of involvement of the mastoid. Such a case might be running a high temperature owing to an acute follicular tonsillitis or an acute nasopharyngitis, or from an acute suppuration of one or several nasal accessory sinuses,—the direct infection of the ear having occurred in the midst of their acute symptoms. Headache might be present from the high temperature; there might be some question of stiffness of the neck from glandular infection; there might be a questionable or very positive evidence of an acute mastoiditis; or a sigmoid sinusitis. In such a case, I believe one is warranted in operating the mastoid, with as little concussion as possible, in the presence of an acute labyrinthitis,—being guided at the time of operation as to whether or not the labyrinth should be drained, by a spinal puncture and examination of the fluid for symptoms of meningitis. This can be done, where laboratory facilities are easily available, without any delay, the report being returned to the operator long before the mastoid excavation has been completed.

In the absence of evidence in the cerebrospinal fluid, of a beginning meningitis, I should, even under these circumstances, advise leaving the labyrinth alone except in rare instances. I am quite aware that this practice is considered too hazardous by many, but my own experience and that of others with whom I have seen cases, has been fortunate enough to warrant that conclusion, for the present at least.

Reverting for a moment to the subject of spontaneous nystagmus (one of the manifest symptoms of acute labyrinthitis) you will notice that I spoke always of the slow movement of the nystagmus first, and always of the slow movement as the one of diagnostic importance. You are aware that all nystagmus of a vestibular origin is characterized by a slow movement in one direction followed by a quick recovery movement in the opposite direction. You are also aware that the slow movement is the only one for which the vestibular sense is responsible. It is a very good thing also to keep constantly in mind that the slow vestibular movement is always away from the side which is exerting the most powerful influence. The vestibular impulses which keep us constantly informed of our position in space and influence our vision in fixing on moving objects, or on stationary objects whilst we are moving, might —for purposes of demonstration,—be compared to a billiard ball held in a stationary position by three rubber fingers on either side by an equal pressure from three different angles. You can well imagine that the least let-up in tension on any of the fingers would mean that the stronger pressure from its opposing finger would move the ball toward the weaker side, and exactly in the plane represented by a line drawn through the weakened finger and its protagonist. Now a labyrinthine stimulation might increase the impulses on that side to make a stronger "push" than that of the opposite normal side; the eyes would then rotate slowly toward the normal side, making a rapid recovery movement toward the stimulated side. This may

happen in the very earliest stages of labyrinthine involvement.

In an involvement of the labyrinth which in the least impairs or destroys the function of the vestibular apparatus, the impulses from that side are weakened or ablated entirely. Going back to our billiard ball the normal impulses from the sound side will push it toward the weakened one. The vestibular movement of the eyes (the slow movement of any vestibular nystagmus) then, is invariably away from the side sending out stronger impulses, so that it follows that a slow movement away from a diseased ear must mean increased function of an over-stimulated vestibular apparatus.

On the other hand, a slow movement of the eyes (of vestibular origin) toward a diseased ear, cannot be anything but the result of a weakened or absent function on that side. The normal impulse of the sound ear has produced this imbalance.* Suppose that we imagine another influence, quite outside of the little rubber fingers, which intermittently, violently, and rapidly jerks the ball back to its original position by a much more powerful impulse than they exert. This would typify a central influence on the eye, acting from a centre quite separate from the vestibular apparatus which in vestibular imbalance is entirely designed as a compensatory act. Why, under such circumstances, have we fallen into the habit of naming the nystagmus from this quick compensatory movement, instead of from the slow movement absolutely of vestibular origin? Even if it does not upset our train of thought in observing any case with labyrinthine symptoms, it fails to do so only because we transpose our terms. We cannot think of it properly without transposition; therefore why should we not at least cease designating nystagmus by the direction of the quick recovery movement?

We might say, in describing symptoms, that a nystagmus of vestibular character is present. This would mean that there is a slow and a quick movement. If we wished to be logical, we might say "the slow movement (the vestibular one) is away from or toward the diseased ear," —as the case might be. Without transposition of terms the beginner—and the experienced diagnostician also, for that matter—might then have a definite notion of what was happening in the vestibular apparatus.

We have thus far said nothing about the diagnosis or treatment of a chronic case. All chronic cases are characterized by the fact that there are no gross manifest symptoms. We discover indications of a chronic labyrinthitis in the course of a functional examination of a case of suppurative otitis which has formerly passed through an acute labyrinthitis, with destruction of both hearing and static sense. The clinical history of a previous train of symptoms similar to those just recorded in the acute cases, might lead us to expect to find such a lesion. The demonstration of the presence of a dead labyrinth is perfectly simple. The functional test of hearing will show its complete ablation. The caloric test will show complete loss of function on the diseased side. You will remember that for practical purposes I included as chronic cases all acute cases which had ceased to exhibit spontaneous evidence of labyrinthine involvement. There is no need whatever of hesitating to employ for purposes of experimentation any of the tests which were so severely criticised in the investigation of acute cases. The rotation test may demonstrate a very marked imbalance in the vestibular apparatuses,—the after nystagmus resulting from rotation in one direction being much more marked than that in the other. If this is the case, standing with the eyes closed; walking forward or backward with the eyes closed; walking forward and suddenly looking in either direction; attempting to do things in the dark which formerly could be easily done; standing on one leg; walking or standing on an inclined plane,—will all, in various degrees, show an unstable equilibrium, amounting in some cases to complete loss. If the patient is whirled, and his head placed in one position, he will fall in a certain direction; and if whirled and the head placed in another position, he will fall in another direction. The extent of his response to these experiments will depend upon the rapidity with which he has compensated for the loss of function of one of his vestibular apparatuses.

In a general way, the length of time following the complete destruction, will have much to do with his responses to these experiments. Nevertheless, just as one person may learn to walk a narrow plank or do some unusual athletic feat very quickly, while another may take a long time to do it or never be able to do it at all, so we may measure the variation in compensation for loss of one static apparatus, that we may find in any such case. It follows, then, that after all, no matter how many experiments we may try from an interest in the phenomena—all of which we may predict if we know there is a dead labyrinth present—we are led always to the confirmation of any evidence we may derive from them by the result of the caloric reaction. If there is any remaining function in either the cochlear or the vestibular apparatus, an operation for draining the labyrinth is unjustifiable.

For practical purposes, therefore, if we have neither the time, nor the apparatus, nor the inclination, it is not necessary to do more than make the functional tests of hearing and the caloric test for vestibular reaction, in order to

Note: I wish to make it quite plain that I am speaking of vestibular lesions only. It is well known that a cerebellar lesion would induce a nystagmus in just the opposite direction. Destruction of a labyrinth would produce a nystagmus the slow movement of which would be toward the destroyed side. Subsequent involvement of the cerebellum on that side would reverse the nystagmus. There are many differentiating phenomena brought out by pointing tests, direction of falling, etc., a discussion of which is quite beyond the limits of this paper.

determine—so far as functional tests go—whether or not a chronic labyrinthitis should be subjected to operation. To my mind, a fistula test in these cases is fraught with quite as much danger as in the acute cases, because one never knows how large the fistula may be nor how insecure the barrier which nature has erected between the meninges and the suppurating focus.

It has been stated by a man of wide experience, and reiterated by many who have followed him, that complete compensation for loss of function on one side, as evidenced by the whirling test, is a contraindication to invasion of the labyrinth at the time of a radical operation, on the ground that in such cases the labyrinth has been healed by the deposition of bony or fibrous tissue in place of the former purulent material. This seems an irrational conclusion, inasmuch as I have operated on several cases in which the whirling test showed almost perfect compensation, yet which at operation revealed necrosis of the labyrinthine wall and purulent foci in both the cochlea and vestibule.

The fiat has gone forth from another man of large experience, and has been widely accepted, that no radical operation should be performed on a chronic suppurating ear, in which a dead labyrinth has been demonstrated by functional tests, without opening the labyrinth at the same time. This also I think is an unwarranted conclusion, inasmuch as a radical operation on such a case of very long standing seems justifiable without invading the labyrinth, unless a very definite lead into the labyrinth is revealed on careful inspection. This is more than ably supported by the conclusion just mentioned by the other man of wide experience.

From my own experience, I would say that no radical operation should be done on an ear showing a dead labyrinth without the intention of entering the labyrinth if careful inspection showed any lead in that direction.

The reason why this fiat went forth was, I believe, because so many such cases operated, without drainage of the labyrinth at the same operation, resulted in the conversion of a latent focus in the labyrinth into an acute meningitis. The cause for such a catastrophe could be attributed only to a traumatic rupture of barriers which had been walling off the purulent focus from the meninges. This only emphasizes the position of those who insist that operation in such cases should be done with extreme caution for the avoidance of concussion or rough manipulation of any area which might possibly be leading into the labyrinth, unless such manipulation was to be immediately followed by free opening into both vestibule and cochlea.

Those who will operate with such care that they feel certain they have not broken down barriers which have held for months or years, may—if they find no lead into the labyrinth—safely omit drainage of the labyrinth, with the expectation that the majority of such cases will recover without it. Occasionally a case may require a later labyrinthine exenteration, owing to the fact that latent foci of infection were present, which did not show sufficiently gross evidence on inspection to lead the operator to enter it at the first operation. It is my conviction that this practice would avoid the necessity of the more extensive operation in many instances, and would not subject the patient to added danger in those cases that may subsequently require the second operation.

A word as to the kind of operation advisable in these different cases.

Inasmuch as no acute case is operated unless early symptoms of meningeal involvement are present, it follows that any operation is inadequate which falls short of draining the dura at the same time that the labyrinth is opened. Such cases should have the vestibule opened both in front and behind the facial nerve, the cochlea uncapped, and the scala and modiolus entirely removed so that the meningeal fluid washes freely through. The plate from the lateral sinus to the petrous pyramid should be entirely removed, a slit made in the dura as near the internal auditory meatus as possible, and drainage of the meninges at that point facilitated by a ribbon of rubber tissue inserted through the slit. A similar drainage of the tempero-sphenoidal region should be made if there is evidence of rapidly extending meningitis.

Any chronic case exhibiting evidence of meningeal involvement should have a similar operation. The chronic case, however, which exhibits only a suppurating labyrinth, should be opened in front and behind into the vestibule, the cochlea uncapped with extreme care to avoid breaking the modiolus down to a point which will open a communication with the meninges. If the granulating, suppurating cavities are opened and washed out, they will heal rapidly. It is quite inadvisable, in my opinion, to curette granulations from these cavities, for fear of opening up an avenue of infection either through the aqueductus cochleae or the aqueductus vestibuli. It is advisable to avoid removal of these protecting granulations, just as we now avoid curetting the granulations in epidural or perisinuous abscesses. Free exposure, washing, and adequate drainage, will be more successful. The removal of the inner plate, from the sinus to the petrous pyramid, in these cases without any meningeal symptoms, prolongs the operation and increases the danger, without in any way aiding the recovery of the lesion.

I have said nothing definite about the classification of inflammatory conditions of the labyrinth, except to hint at the idea that it had been made too complicated. You will note that I have mentioned only acute cases in which the endo-lymph was invaded, and those which gave

acute symptoms from the peri-labyrinthine inflammation. I have no idea of insisting that the classification into (1) circumscribed labyrinthitis, (2) diffuse serous secondary labyrinthitis, (3) diffuse purulent manifest labyrinthitis, and (4) diffuse purulent latent labyrinthitis, should not be adopted if you wish to do it; but I do insist, since they all arise from a suppurative otitis, that you will be unable to differentiate between the diffuse secondary and the diffuse purulent manifest labyrinthitis in the majority of cases, except by time and the outcome regarding function; and that, having made this distinction, even on that evidence, you may often still be wrong.

Dr. John B. Rae read a very excellent paper on "The Diagnosis of Inflammatory Diseases of the Labyrinth," before the Medical Society of the State of New York at Saratoga Springs, May 16, 1916, in which he simplified the classification into: (1) acute diffuse labyrinthitis; (2) chronic diffuse labyrinthitis; (3) para-labyrinthitis,—(a) with fistula; (b) without demonstrable fistula. To my mind, this covers the ground quite sufficiently, and includes all the cases under the more confusing classification first mentioned. If it were to be put to a vote, I might offer the amendment that the conditions be called: (1) acute endo-labyrinthitis; (2) chronic endo-labyrinthitis; (3) para-labyrinthitis,—(a) with fistula; and (b) without demonstrable fistula,—but I am not at all sure that the amendment might very justly be voted down in favor of the original proposition.

PARAVERTEBRAL ANESTHESIA.

BY FRANK C. W. KONRAD, M.D., BOSTON.

THE application of conduction anesthesia to blocking of the spinal nerves at their points of exit through the intervertebral foramina was first used by Sellheim in 1905, and termed by him "paravertebral anesthesia." The more or less imperfect results obtained by him were most likely due to the high degree of toxicity of the drugs, especially of the cocain, which were used, and which made it difficult or impossible to distribute over a sufficiently large area a sufficient quantity of the drug, and still keep within the bounds of a safe total dosage. Also, he attempted to make the injections as near as possible to the intervertebral foramina, and therefore it is conceivable that some of the drug entered the peridural space by diffusion, or even the dural space by direct puncture of the needle, thus increasing the toxic effect of the drug. Later Braun blocked the sacral nerves along their course in the hollow of the sacrum, and called this procedure "parasacral anesthesia." Numerous other investigators have applied the conduction anesthesia more or less extensively, but nowhere has it found such general application as at the University Frauenklinik of Freiburg, Germany, of which Geh. Prof. Dr. Kroenig is director.

My experience with paravertebral anesthesia covers the work done at the Freiburg clinic from June 1, 1914, till Oct. 1, 1915, during which time I was assistant there. I have since then received a report from Dr. Siegel, first assistant at the clinic, covering the work to December, 1915, and including 770 cases.

I am indebted to Dr. Kroenig for the kind permission to use his paper,[1] and to Dr. Siegel for his latest report.[2] I shall use the term "paravertebral anesthesia" as it is used in the Freiburg clinic, to include "parasacral anesthesia." As the technic of this anesthesia is fully described in Dr. Kroenig's paper, I shall not again review it here, but wish to add a few notes on cases that I have done since my return from Germany, including some of the later observations from the Freiburg clinic as well.

Through the kindness of Dr. N. R. Mason, first assistant visiting surgeon to the Boston City Hospital on the gynecological staff, I was given opportunity to make my first public demonstration of paravertebral anesthesia in this country.

A multiparous woman 37 years of age, had come to the hospital for treatment of extensive lacerations of the perineum and prolapse of the uterus, but owing to a daily elevation of temperature from 99 to 101°, operation was postponed. There was an obvious tubercular process involving both lungs, and, as this did not readily improve under treatment in the wards, she was about to be discharged as inoperable on account of it. At this time the advisability of operating under paravertebral anesthesia was considered and finally decided upon.

An extensive perineal repair, followed by a ventral suspension of the uterus and appendectomy were done. Only at one point during the course of the operation did the patient evidence any sign of pain, and that was at the time of packing back the intestines with a Weston strip. At this point the patient was given a whiff of ether, but after operation remembered neither the pain nor the ether. The rest of the operation was completed without further mishap. There were no apparent after-effects of the anesthesia. The patient was allowed to drink water on the operating table during the course of the operation, and immediately afterward. During the afternoon she was given chicken broth, and in the evening a light supper, going onto a light house diet on the day after operation. On the afternoon of the day after operation the patient's temperature rose to 101.4°, but after that fell gradually to 98.2° on the fifth day after operation, and did not again rise above 98.6°. She was discharged, relieved,

fourteen days after operation. Her stay in the hospital had a decidedly beneficent effect on her tubercular condition, as evidenced by the temperature, despite the operation.

Another case from the gynecological service of the Boston City Hospital, and operated by Dr. Mason, was a young woman 23 years old, and pregnant in the seventh month. On entry she was weak from loss of blood, cachectic, and had a hemoglobin index of 55%. Examination showed an extensive cauliflower growth on the cervix, which was proven to be carcinoma by microscopical examination. She was operated on in two stages, the first being a Caesarean section, followed by a cauterization of the cervix by Dr. Robert M. Green, and second, a complete hysterectomy by Dr. Mason, preceded by a cauterization of the cervix by Dr. J. T. Williams. Both operations were performed under paravertebral anesthesia; the complete hysterectomy twenty-two days after the Caesarean section. Her convalescence was somewhat stormy, being complicated by sepsis, but she could be discharged relieved fifty-one days after the first operation.

Hereupon followed eight successive cases which were operated upon by Dr. A. R. Kimpton. Ether was contraindicated in all of these, and four of them were considered poor operative risks under any form of anesthesia. Among the complications were: a severe hyperthyreosis, myocardial weakness, chronic nephritis, hysteria, and one case of obscure bronzing of the skin. In the latter case the gall-bladder was palpated and nothing abnormal found. Also a case of enormous ovarian tumor, with extreme emaciation, and edema of the lower extremities. All cases were successfully operated by Dr. Kimpton, and in all but one the paravertebral anesthesia sufficed to give complete relaxation of the muscles involved, and a complete freedom from pain. In the one case the operation had to be completed under ether because the operation necessary proved to be more extensive than was provided for in the anesthesia.

I wish to mention finally a case of diabetic gangrene of the foot. Amputation of the leg was advised, but the patient did not consent to operation until forty days later. At this time he was running a slightly septic temperature. The leg was amputated above the knee by Dr. F. J. Donoghue. The anesthesia was a perfect success.

These cases are mentioned in particular because of their phenomenal success in view of the fact that ether particularly, and inhalation narcotics in general were contraindicated, and that all were considered poor operative risks under any form of anesthesia.

The following is a list of the operations for which I have administered paravertebral anesthesia.

Caesarean section	1
Forceps delivery	27
Dilatation and curettage	5
Primary perineal repair	10
Craniotomy	4
To relieve pain of labor	1
Colpoperineorrhaphy	1
Ventral suspension of the uterus	2
Resection of both ovaries	1
Complete hysterectomy	2
Supracervical hysterectomy	2
Appendectomy	5
Cauterization of the cervix	1
Suprapubic cystostomy	1
Thyroidectomy	2
Excision of the breast	1
Amputation of the leg above the knee	1

These constitute a series of fifty cases, thirteen of which were operated by other operators than myself.

Additional ether was used in five cases: twice because the patients evidenced signs of pain, but remembered neither the pain nor the ether afterward; once because the final skin suturing was not completed until three hours and ten minutes after the paravertebral injections had been made, and the anesthesia was beginning to wear off; once because the operation had to be more extensive than was planned for in the anesthetization; and once because the patient seemed to possess a certain immunity to all the drugs administered by perineural and subcutaneous injection. Only this last case should be considered a true failure of the anesthesia itself, as the others were due to an error in application or to an overestimation of the signs of pain as exhibited by the patient during the operation. Even in this case, however, a dilatation and curettage was done without the patient being aware of it, though she recognized conversation in subdued tones. However, the amount of ether required in all of these cases was infinitely small, as compared to the amount that would have been necessary in the absence of paravertebral anesthesia.

It is well to note here that especially in laparotomies, where organs and tissues are pulled upon so as to affect areas beyond the field of anesthetization, the patient will evidence signs of pain. This is especially true when packing back the intestines with gauze. These pains, however, are of a dull character and are, as a rule, not remembered after the operation, if the patient had twilight sleep preceding the anesthesia. Also, our long experience with inhalation narcotics and consequent complete anesthesia and unconsciousness has permitted a degree of carelessness in the handling of tissues, which experience with paravertebral or local anesthesia and its associated consciousness, or semi-consciousness, will teach us to avoid more and more, to the ultimate benefit of the patient, and also to a reduction of the number of imperfect anesthesias under this method.

Preceding the anesthesia with some form of semi-narcosis, as, for instance, twilight sleep, is essential in most cases, and advantageous in all

cases of major operations. I prefer to give ten grains of veronal on the evening before operation, and early the next morning two successive doses of scopolamin 0.0003 G. and narcophin 0.03 G. 2¼ and 1½ hours, respectively, before beginning the operation. With care in giving the first subcutaneous injection in the morning, the patient may not even be awakened, and thus remember nothing of the preliminary preparations to the operation from the night before until some time after the operation, when he is again comfortably lying in bed. Occasionally it may be necessary to give one-half the above dose of scopolamin and narcophin immediately before beginning the paravertebral injections, and again during the course of the operation if it is desirable to keep the patient asleep and unaware of the operation.

The first case mentioned above, in which the patient, after showing a daily elevation of temperature for three weeks preceding the operation and running a perfectly normal course after the fifth day, suggests a beneficent effect of paravertebral anesthesia, combined with scopolamin and narcophin, on a pre-existing infection concomitant with or due to the condition for which the operation is performed. I have repeatedly observed it, especially in cases with infections of the upper air passages. Is it because these conditions are not aggravated by the paravertebral anesthesias, as, for instance, by ether inhalation, and relieved by the rest necessitated by the operation? Or is there a direct antiseptic action of the fluid injected? Or is it due to the elimination of all the emotional stress that would precede the operation if the preliminary semi-narcosis were omitted? Crile's demonstration[3]—that emotion has the same deleterious effects on the brain, suprarenals and the liver, as an infection has—seems to indicate that our last assumption is correct. However, it must also be remembered that in infections of the upper air passages there is no irritation and consequent aggravation of these by paravertebral anesthesia, as there would be by ether or some of the other inhalation narcotics.

My observations do not differ materially from those of Kroenig and Siegel, and the latest report from Dr. Siegel of the Freiburg clinic shows no material changes in the technic of or indications for paravertebral anesthesia. As our experience with its technic and its adaptability to various patients increases, so does also its field of application increase. Important points to note are: the psychic status of the patient, and dealing with it according to need; care in anesthetizing all of the nerves likely to enter into the innervation of the field of operation, anesthetizing too much rather than too little; and finally a greater amount of care in handling the tissues than we are accustomed to in other forms of general anesthesia.

The plasticity of its application and nicety of its confinement to just the necessary field gives to paravertebral anesthesia an unqualified advantage over spinal and sacral anesthesia, and eliminates the dangers and uncertainties of these. The freedom of the field of operation from infiltration of any foreign fluid gives it preference over local infiltration anesthesia. The convalescence is hastened by the fact that the patient is able to take and retain fluids and nourishment immediately after operation. Thus his energies are spared during the operation by the elimination of shock, and restored by his ability to continue his nourishment practically without interruption.

An objection is found by some operators in the waste of time with this form of anesthesia. This does apply if the operator himself wishes to administer the anesthetic, which would be impossible with ether. However, in a series of cases to be done at once, three or four patients may be anesthetized and then operated on in quick succession, for the anesthesia lasts from two to three and one-half hours, and sometimes even for a longer time. But if the anesthetic is administered by an anesthetist, there need be no loss of time, as the patient can be prepared and ready for the incision at any time designated by the operator. In larger clinics a rotation of cases is accomplished with greater facility than with ether, for, the patient once anesthetized, does no longer require the attention of the anesthetist, but can be watched by a nurse. In fact, it is always well at the operation to have a nurse stand by the patient, to speak encouragingly and to divert the patient's thoughts from the operation whenever this seems necessary.

The semi-narcosis may be continued after the operation to tide the patient over possible immediate pains following the operation. In fact there are so many points of adaptation in this form of anesthesia as to make it the anesthesia of choice for any operation, major or minor, except as an emergency where immediate anesthesia is required.

As to dosage, the same principles as described in Dr. Kroenig's paper hold true. In one case I have even exceeded 600 cc. of a one-half per-cent. solution by 20 cc., making the total dose of novocain 3.1 grams, without causing any untoward effects.

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Measles in San Juan.—Report from San Juan, P. R., on February 16, states that a severe epidemic of measles is prevalent in that city, where there have already been 1700 cases and several deaths.

Clinical Department.

A LARGE OVARIAN TUMOR.

BY FRANK A. PEMBERTON, M.D., BOSTON.

THIS case is reported because it is so unusual to find such a large cyst now-a-days.

Cora S. Age 67. Married 45 years. Widow for last 2 years.

Children: 1—38 years ago. Miscarriages 0.

F. H., neg. P. H., neg.

Menopause 22 years ago; no flow since.

P. I. Patient states that she has noticed a constant increase in the size of her abdomen for 7 years, which has been more rapid in the last 2 years. A feeling of weight in her abdomen and frequency of micturition are her only symptoms. She has noticed a mass protruding from her vagina for several months.

P. E. Showed the condition seen in the photographs. Her abdomen was tense, dull to percussion except at the top, and a fluid wave was easily felt on tapping. The tumor was smooth, of the same consistency throughout. She has very little subcutaneous fat and weighed 153.5 pounds.

VAGINAL EXAMINATION SHOWED A PROCIDENTIA.

Her occupation is that of attendant to an invalid and she has not been discommoded to an uncomfortable degree until lately. She has always been able to take care of herself hygienically, and to dress and undress, even to putting on and removing her shoes and stockings. She is bright and happy mentally and does not show the drawn, rather haggard countenance that one associates with large ovarian tumors.

ENTERED FREE HOSPITAL FOR WOMEN JUNE 12, 1916.

Operation June 15, 1916. Ether anaesthesia. A short median incision was made through an abdominal wall only half an inch thick. Examination showed many adhesions between the upper half of the cyst and the abdominal wall which could not be separated owing to the tension. The cyst was accordingly tapped without spilling into the abdominal cavity and 34 pints of cloudy, brown, pseudomucinous fluid removed. This left the cyst in a state of flabbiness which rendered the cutting of the adhesions easy. The incision was enlarged to within a few inches of the pubes and ensiform so that the adhesions in the flanks could be reached; and in order to resect the abdominal wall. No adhesions were found to the intestines, which were crowded up and behind the tumor, and this may account for the lack of pain as a symptom. The cyst was found to have developed from the left ovary, receiving its blood supply through a pedicle four inches broad and one inch thick. This was tied and the cyst removed. The right ovary and uterus were atrophied. A hysterectomy was not done because it was not necessary but the uterus was sutured to the abdominal wall to relieve the procidentia. An area of tissue comprising the whole thickness of the abdominal wall, about 5 inches wide at the middle, was excised on each side of the incision, and the peritoneum, fascia, and skin sutured in separate layers.

The operation took 45 minutes, a good deal of time being required to sew up. The patient had no

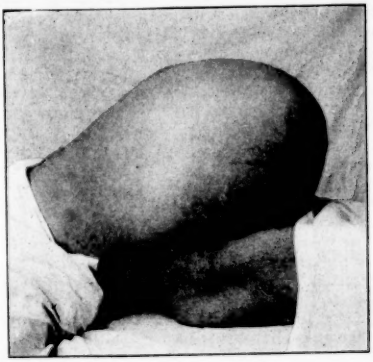

FIG. 1.

shock, which corresponds with our experience in removing large cysts and fibroids. The operation does not cause shock unless a good deal of blood is lost or extensive adhesions have to be separated.

She had a normal convalescence. When she got out of bed and started to walk she had trouble in keeping her balance for a day or two but had no more inclination to fall over backward than sideways or forward. She was out of bed on June 26 and went home July 5. Examination showed a contracted abdominal wall covered with redundant skin, and her vagina was well held up.

The tumor and its contents weighed 72 pounds. Pathologically it was a unilocular pseudomucinous cyst adenoma lined by a single layer of high cylindrical cells and showing no papillary hypertrophies growing from the epithelium.

This is the type of ovarian cyst which is most likely to reach a large size. The wall consists of connective tissue with a few smooth muscle fibres scattered through it, lined on the inside

FIG. 2.

by a single layer of high cylindrical cells. Papillary formation is not so common as in the serous cyst adenomas. They are usually multilocular and frequently show the remains of septa where two cysts have coalesced. Their contents consist of serum, pseudomucin secreted by the epithelial cells, cholesterin crystals, blood, and desquamated epithelium. They show carcinomatous degeneration in only 1.5%; 88% of these cysts are one sided.

Implantation metastases may occur on the escape of cyst contents into the abdominal cavity usually either by rupture of the cyst or escape of fluid during tapping, but such metastases are not nearly as likely to occur with this type as with serous cyst adenomata. If they do occur, they eventually involve the whole peritoneum and the abdomen is filled with pseudomucinous fluid. For this reason it is always best not to tap an ovarian cyst, but to remove it intact. An added and stronger reason is that the exact pathology of a cyst of the ovary cannot be made out by external examination, so it is wise always to treat them with respect. With such large cysts, however, tapping is pardonable, because they are not malignant, metastases are unlikely to occur, and the increased difficulty and danger of removing them intact outweigh the other considerations.

We have found reports of three larger cysts which have been successfully removed and doubtless there are others. Kelly reported one weighing 100 pounds. Macpie reported one weighing 86¼ pounds removed from a woman 42 years old, and Black reported one weighing 85 pounds removed from a woman 57 years old.

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A CASE OF ASPERMIA.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

THIS case is reported because it shows the possibility of successful treatment based upon what a few years ago was totally unknown and at present is known only fragmentarily and in a general way—the function of the ductless glands.

E. B., school teacher, age 32, married six years, no children.

Being very intelligent, and greatly desiring to have children, he consulted a very competent specialist in genito-urinary disorders. This physician could find absolutely nothing to account for the aspermia which was present. Repeated examinations of condom specimens over a period of several months failed to reveal a single spermatozoon. A vas deferens was finally tapped near the epididymis and a sample of testicular secretion for examination was obtained. This too contained no spermatozoa. Gonorrhea, syphilis and exposure to x-ray could be absolutely ruled out. Sexual feeling and coitus normal. Patient sent to writer with a view to possible ductless gland therapy. Family and personal history irrelevant except possibly the fact that patient resembles mother, whose mother died of an ovarian "tumor."

Patient a man of average size and build. Very well balanced mentally. Skin, normal. Hair, normal on head but very abundant on arms, legs, chest, abdomen and pubes. Heart and lungs, normal. Urine, normal. Teeth, doubtful. Gums, tender and bleed easily. Appetite good. Bowels, tendency to constipation. Sleep normal. Penis very large for size of man. Testicles large.

From the data it would appear that the man is on the whole about an average male. By a process of exclusion it was decided that the cells from which spermatozoa develop were probably present but dormant. We know that some of the ductless glands have a great influence on the growth and development of the generative apparatus. These glands are especially the thyroid, the pituitary and the suprarenal *cortex*. Furthermore in this case if the fault lay in any of the ductless glands, obviously it must be a case of hypo-function.

There were no symptoms of hypo-thyroidism, such as myxoedema, even in slight degree. The pituitary was ruled out also for lack of symptoms such as polyuria, drowsiness, lack of ambition, obesity, low blood pressure and the like. On the other hand two facts pointed to a former *hyper*-action of the suprarenal cortex—the body hairiness and large size of the external genitalia. Hyper-action of any organ implies eventual hypo-action of that organ. Accordingly we acted upon the theory that this patient for an indefinite time, probably from some time after puberty, had had a condition of cortical hypo-suprarenalism.

He was given 4 grains of dried suprarenal cortex daily, increasing to 6 grains daily. Treatment was begun on Sept. 23rd. On Nov. 25th a few perfectly formed spermatozoa were found in a condom specimen. The finding was confirmed by Dr. M. L. Casey, pathologist to St. Mary's and the General Hospital.

A CASE OF CONGENITAL DISLOCATION OF THE SHOULDER JOINT.

BY FRANK E. PECKHAM, M.D., PROVIDENCE, R. I.

IN the *Archives of Pediatrics*, Vol. XXI, No. 9, July and September, 1904, I reported two cases of congenital dislocation of the shoulder joint. One of these cases was aged eleven months and the other twenty-two months, and the conclusions as given at that time will be reproduced, *i.e.*, "As far as can be seen, the results are about alike in the two cases, and why there should be inability to elevate the arm is not evident. Phelps advised putting the arm up straight at the first dressing, thinking thereby to secure motion in this direction. In Case 1,

FIG. 1.
CONGENITAL DISLOCATION OF THE SHOULDER JOINT, NOVEMBER, 1914.

there was positively nothing done that could not have been done without cutting, and in another case at so young an age, I should feel like reducing without a cutting operation, and bandaging the arm in the same position as above for two or three months."

This made very interesting reading when Case No. 3 appeared in November, 1914. E. W., a girl aged seventeen years, presented herself with an arm hanging helpless and with motion much limited and abduction impossible. Fig. 1

FIG. 2.
SHOWING SHOULDER IN PLACE, JUNE, 1915.

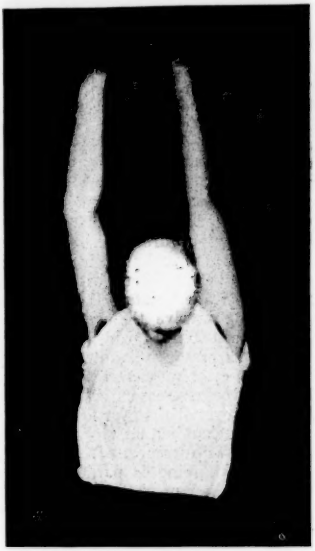

FIG. 3.
SHOWING POWER OF ABDUCTION ABOUT ONE YEAR AFTER REDUCTION.

shows the condition at that time. Under ether, the dislocation was reduced by manipulations and held in position by means of many strips of adhesive plaster. It was kept in place for about six months, when strapping was omitted.

Fig. 2 shows the shoulder in place in June, 1916. The arm was freely movable in all directions. Fig. 3 shows the ability to abduct about one year after the reduction.

A CASE REPORT.

BY ALLEN H. BLAKE, M.D., WEST SOMERVILLE, MASS.

A PATIENT, referred to me for x-ray examination by Dr. H. F. Curtis, showed on the plate not only the expected fracture of the radius, but also the sclerosed artery. Further investigation resulted in the following history:

B. L., 56 years of age, hack driver. Family history of no importance.

Previous History. "Pneumonia" four times. Denies venereal disease. Has five living children. Three died in the early months. Wife had one miscarriage,—in the first pregnancy. Tobacco plus, and alcohol in marked excess. There are no marked symptoms of his condition.

Physical Examination. Heart apex in the fifth space and in the nipple line. Soft systolic murmur at the apex. Lungs negative. Liver moderately en-

larged. Urine negative. Blood pressure: diastolic 82, systolic 136. Further roentgenological examination showed equally clearly, sclerosed arteries in other parts. The shadow of the aortic arch was slightly broadened.

Therapeutic and Preventive Medicine.

TREATMENT OF PAIN AND DISTRESS IN DIGESTIVE DISORDERS.

BY A. EVERETT AUSTIN, M.D., BOSTON.

Assistant Professor of Clinical Medicine, Tufts College Medical School; Acting Chief of the Medical Clinic, Boston Dispensary, and Physician to Berkeley Infirmary.

As viewed by the laity who are afflicted with digestive disorders, the most distressing symptom is the pain or discomfort which they suffer after taking food. This is often so troublesome that regarding food as the source of all the ills which they experience, they often avoid it, with disastrous results to their general well-being, or restrict themselves to malted milk, gruel, beef tea and other liquid rations which produce the same effect as starvation, a woeful condition of malnutrition.

From a long experience with these tales of woe, it has been found that it is often almost impossible to learn definitely, whether they actually have pain or only discomfort, because the latter is exaggerated in the minds of many to a very conscious counterfeit of pain, even if that does not exist. Sometimes we can obtain a definite knowledge by asking the patient its relative intensity as compared with pains to which we are all at times subject, such as toothache, earache, colic, etc. If the pain is said to occur after every meal, whether liquid or solid, simple or made up of different articles of food, we may be assured that discomfort is referred to and not pain, because the laws of the latter with reference to the time when food is taken and its character are fairly well established. Then, too, if pain is followed by vomiting, we may usually be assured that it is the real thing, because the distress after food is rarely of such intensity that emesis follows. Pain, too, which is reflected to the back, upper chest and shoulder blades, originating above the navel, is apt to be genuine, as discomfort following food rarely pursues this course, but is confined pretty closely to the region in which it originates. An exception to this, however, is cardio-spasm which is often so intense that it streams to the left shoulder and often resembles an angina, for which the term pseudo-angina is employed, but yet can often be allayed by some carminative and is usually followed by free eructations of gas. The pain of pyloric spasm, which is not necessarily the outcome of organic changes is also genuine but occurs periodically and usually long after food is taken, particularly in the early morning hours. In marked distinction from the discomfort after food, this pain is usually relieved by a glass of milk or an egg, instead of being exaggerated.

The pain of gastric and duodenal ulcer, however, is generally clearly defined, varying largely with the time of onset after food is taken and with the effect upon the same of the food itself, since it is well known that any nutriment exaggerates the former and temporarily alleviates the latter. Furthermore, both, according to my experience, are periodic or seasonal in their character, with long periods of comparative comfort or at least, only gastric discomfort. Gall-bladder infection is very erratic, producing either acute and most excruciating pain or simply digestive discomfort accompanied by eructations. Gastric cancer is usually accompanied by suffering only when attacking the pylorus and then, as stated by R. Schmidt, only during the period when free hydrochloric acid is secreted. After the peptic cells are destroyed by the progress of the disease or by the associated gastric catarrh, pain ceases. When, however, with any of these affections, perigastric adhesions are formed, there is generally discomfort and with overdistention of the stomach, acute pain. These adhesions must play a much larger part in the accompanying suffering than is generally supposed since it is well known that fatal perforation of the stomach, duodenum or gall-bladder, without previous adhesions, may occur, when there has preceded only mild digestive discomfort. When, as patients declare, discomfort exists all the time except during sleep, in the epigastric region without any exaggeration or alleviation by taking food, the conclusion is usually justified that the patient has a ptosis of the stomach or possibly of all of the abdominal organs. Very little light can be obtained from the patient's description of the pain in many instances, since a variation of terms such as "stabbing," "tearing," "burning" and "like fire," as some

declare and "as if the organ was seized with red-hot pincers" are employed by the possessor; graphic, though not always intelligible to the listener.

Many explanations of the production of this pain are given but they are applicable only in few instances. The theory that violent peristalsis is a causative agency is hardly probable, since it is sometimes possible to observe marked peristaltic waves passing across the abdomen accompanied by temporary rigidity by which the stomach is seen to be forced above the level of the abdominal wall, yet the patient is entirely unaware as far as sensation is concerned, of this activity. Then, too, one can often see under the fluoroscopic screen, contractions of the stomach of such intensity that apparently the lumen is entirely obliterated and yet, patients are entirely unconscious of them and are frequently talking unconcernedly with the observer. On the contrary, when adhesions can be made out, as they sometimes can, then these waves are found to be painful.

Again, hypersensitiveness of the gastric walls, when in contact with each other during fasting, is sometimes offered as an explanation, but very frequently these same individuals have their discomfort increased by simply drinking a glass of cold water, which, if it had any action, would separate the walls. Overdistention of the stomach, when no adhesions are present, is equally valueless as an interpretation of the causation of pain, because these same patients on a vacation, or at a dinner with good company, declare that no discomfort occurs though they may have eaten much more than at home during their usual routine. Mere spasm of the cardia or pyloric orifices is also of doubtful value, though possibly the peristaltic action of the stomach against these temporarily imposed barriers may cause pain; the latter statement has more in favor of it because the urinary bladder, when obstruction exists in the urethra, may produce severe pain by these spasmodic contractions.

The treatment of cardio-spasm, naturally, divides itself into two parts; first, when functional, prevention, which comprises the following suggestions: The patient must avoid rapid eating and particularly drinking, because of the great risk of causing an attack when much air is introduced into the stomach. An excellent plan to follow in taking fluids has been found to be the use of a tablespoon, by which, necessarily, only a small portion enters the esophagus at one time. Many suggestions can be offered also with the purport to stop the wolfing or bolting of food; laying down the knife and fork after every mouthful will tend to check this haste and cause better mastication, while a watch laid before the individual will soon convince him of the rapidity with which he is devouring his food. No iced drinks nor foods should be taken, since these, too, tend to bring on an attack of the spasmodic closure of the cardia. All efforts to overcome the spasm by eructations must be avoided, since usually more air is introduced into the esophagus than escapes. Constipation must be controlled, as apparently, by reflex activity, it predisposes toward such spasm. Smoking and aerated drinks are also known to encourage these attacks and consequently must be given up.

During an acute attack, the suffering varies from mild pain which the patient usually localizes in the precordial area and considers due to a heart attack, sometimes termed pseudo-angina, to a most incessant suffering, reminding one, often, of an attack of gallstone colic. For the severer attacks, nothing works with the rapidity and efficacy of the hypodermic injection of morphine, since our only object is to relax the spasm. Less severe attacks can usually be overcome by means of the carminatives, such as a half teaspoonful of equal parts of spirits of chloroform and compound tincture of cardamom or the latter with aromatic spirits of ammonia, given in hot water, either sipped or taken with a tablespoon. The old and well-established remedy, Jamaica ginger, taken in hot water, will usually relax the milder forms of this spasm. Where the patient's pocketbook permits, validol or menthyl valerianate serves the purpose admirably.

On the contrary, when this spasm is the outcome of an ulcer situated at or near the cardia, the patient should be subjected to a regular ulcer diet, as originated by Lenhartz and modified by as many practitioners as have ever used it. Where the attacks are of functional character, the choice of food has seemed to me of very little importance, provided the suggestions made above are followed; but when actually due to ulcer, a most rigid selection of bland, non-irritating food must be made to check possible irritation.

The management of distress after food is taken, usually arising from gastric myasthenia, is one of the most trying problems presented to the physician. As this apparently arises from any distention of the stomach, our object is to provide the patient with sufficient nourishment and to render his discomfort during the period of its digestion as little as possible. To do this, we must advise small, frequent meals with little or no fluid; hence, soups and large quantities of milk are absolutely inadvisable, and the food should always be taken dry. Fluids may be taken, of course, but in the intervals between meals so as to avoid overdistention. Moreover, the more finely divided the food may be, the more readily it leaves the stomach and the less the period of discomfort. Fats, too, are known to delay the motility of the stomach or, at least, leave it very slowly so that, outside of cream and butter, they should be eliminated from the dietary. Patients, too, from their personal sensations, declare that meat also causes them much more discomfort than any other form of food, and the more extensive employment of eggs, soft

cheese and gelatine to supply the protein deficit should be advised. Our efforts should be directed to lessen the discomfort as much as possible and to increase the gastric motility. The former can be accomplished frequently by the use of bromides, which may be employed in gram doses after the food is taken, or in the employment of anesthesin, which, while not sufficiently active to delay acute pain, does relieve very much the patient's discomfort when taken in doses of 0.3 gram after the meal. Anesthesin is also prepared in the form of bon-bons which make a very desirable vehicle for its use.

Pyloric spasm with late post-cecal or early morning pain can be alleviated or controlled both by dietetic and medicinal means.. The former consists largely of the total avoidance of coffee or condiments as well as alcohol on an empty stomach. As this condition is frequently accompanied and possibly caused by hypersecretion, though the evidence of the latter is not positive, we should also advise patients to have in their possession, some of the heavier alkalies, like bismuth or magnesia; the former to be employed if there is a tendency to diarrhea, and the latter if the patient is prone to constipation. These substances are rather disagreeable to take and in my own experience, the preparations, known respectively as "Milk of Bismuth" and "Milk of Magnesia," are the most palatable and readily taken. Their only disadvantage is that the amount of material in suspension is small, not exceeding five grains per teaspoonful.

The oils also prove efficacious when taken during the attack or sometimes before the meal, and sweet oil furnishes, perhaps, the most satisfactory of these, though liquid petroleum in tablespoonful doses is very effective in checking the spasm as well as having a mild laxative action. Usually, however, we are compelled to resort to certain drugs to overcome this spasmodic action or "cramp" as the patients term it, and nothing better has been found than atropine sulphate in 1 mgm. doses three times a day, taken after the food. On account of the unfortunate susceptibility of some individuals to this medicament, by which the throat becomes dry and the pupils dilated, interfering with the vision, one must inform the patient of these peculiarities or else much alarm is aroused. To overcome this, we may employ methyl atropine nitrate or eumydrin, its trade name, in doses slightly larger than those of atropine itself but never exceeding 2 mgm., three times a day.

Recently, Zweig has recommended very highly the use of papaverin in doses of 0.03 gram a half hour before meals. This has been found to be vastly superior to codeine and does not possess any of the unfortunate characteristics of either morphine or opium.

The treatment of adhesions has proved one of the most obstinate in my experience. The opening of the abdomen and the separation of such does not offer any guarantee whatever that they will not re-form. As a fact, they very frequently, if not almost invariably, do this, and the latter condition of the patient is even worse than the former. The only drug which has ever been recommended with any certainty of success for this purpose is thiosinamine sodio-salicylate or fibrolysin, which is prepared in ampoules ready for subcutaneous injection and can be introduced one ampoule daily, into the muscular tissue by a hypodermic syringe, with some hope of success. My limited experience with this remedy, however, does not furnish sufficient encouragement to continue its use in all cases. In superficial lesions, it is unquestionably valuable; but when after a suppurating appendicitis, we have been compelled to employ drainage, the adhesions are so dense and so extensive that this treatment offers but little hope. Then, too, with adhesions following gall-bladder drainage, this form of treatment is practically useless; with ulcers of the stomach producing adhesions it offers greater hope of success, but one must not rely upon it with too implicit confidence. What, then, shall be done for these unfortunates who come back to us after operations which may have saved their lives but whose pain and discomfort render life unendurable? While as yet, my experience is not sufficiently extensive to claim extraordinary merits for massage, it has been found that this offers a greater amount of improvement than any other means of treatment. This, of course, can be applied only where the site of the lesion can be reached, as after appendectomy, cholecystostomy and operations for duodenal and pyloric ulcers. It goes without saying, that the massage must not cause pain—in other words, that no inflammatory condition can be present about the site of the adhesion. When the adhesion is associated with the stomach, great caution must be employed that the patient never partake of more than an ordinary volume of food which may, of course, be repeated as often as desirable to maintain his nutrition.

Some very troublesome and annoying instances of adhesions in and about the hepatic flexure of the colon have come to my attention. These do not produce the sharp attacks of pain caused by those of the stomach and cecum, but are a constant source of discomfort, which seem little influenced by food but which are distinctly aggravated by constipation. They have always been verified by x-ray examination which clearly shows the slowing of the fecal current at this point, though no obstruction is present.

Naturally, the diet must include a large amount of fruit and fruit juices, coarse breads, green vegetables, honey, molasses and milk sugar. Still further to liquefy and render bland the fecal contents, liquid petroleum has been used to great advantage to dull this grinding pain, as patients describe it. Veronal or veronal sodium once or twice a day has proved very effective.

Nor have I ever seen a habit established when the drug is used for this purpose because it is always possible to withdraw it on every second or third week and still have the patient enjoy a fair share of comfort. Unless this withdrawal at the stated intervals takes place, patients sometimes complain of a temporary lack of coordination of the limbs by which they have a tendency to stagger.

The pains accompanying gastroptosis or splanchnoptosis, usually exaggerated toward evening and disappearing during rest in bed, are but little relieved by any means of medicinal treatment. The proper application, however, of the Rose straps, consisting of bands of adhesive applied diagonally across the abdomen with a lifting motion from Poupart's ligament to the spine, with an additional horizontal strip under the navel extending backward, gives almost immediate relief when this condition is acquired, as so frequently occurs after numerous confinements or abdominal operations. It is our custom to allow these straps to be worn for one week, after which, when relief is obtained, a proper fitting abdominal band is ordered to be worn during the daytime and removed at night. The relief in many cases from these nagging, dragging pains, which are not only experienced in the abdomen but also in the back, is often miraculous.

On the contrary, if this condition of ptosis is congenital, no such relief can be expected and the most satisfactory means of treatment is to place the patient in bed and by means of hypernutrition, endeavor to increase the weight, of which, usually, a portion is due to fat deposit in the abdomen and which acts as a cushion or support. This method was always employed by the late Professor Oser of Vienna at the Rudolph Hirsch Hospital and his opinion was that if this method of treatment could be employed, it was far superior to any form of abdominal support. The later theories by which the congenital form is exaggerated by the faulty posture of the individual are undoubtedly well grounded, and when the patient has passed a period of four weeks of rest in bed with hypernutrition, a correction of this faulty position of the body by means of braces or corsets, such as the orthopedists employ, is often sufficient to overcome this painful sensation of dragging in the abdomen.

The discomfort and occasional moderate colicky pains associated with constipation are to be overcome largely by an anti-constipation diet, accompanied, if possible, by the milder forms of laxative, such as petroleum, cascara, agar agar, phenolphthalein and the milder senna preparations. From experience, we have learned that it is well, at first, to use fairly large quantities of these laxative agencies because small quantities arouse ineffective intestinal peristalsis and frequently exaggerate the pains instead of relieving them. As a general thing, these peristaltic exciters can be diminished in quantity until, frequently, diet alone will overcome the deficiency. Cold applications to the abdomen in the morning, either by bathing or, better still, by means of the needle spray to the abdomen, not only increase the efficacy of mild laxatives but often prove the only incentive, in addition to diet, which is required.

Memorial Addresses.

WILLIAM PALMER BOLLES.*

I.
SURGEON AND MAN.

BY CHARLES F. WITHINGTON, M.D., BOSTON.

THE qualities which impress us as we recall our departed friends fall into two groups,—the professional and the personal. These, of course, are not altogether separable, because the quality of a man's professionalism is modified by the peculiarities of his mind and character, and, on the other hand, a man's way of thinking and acting—his mental and moral attitude—are inevitably affected by the nature of his daily occupation. A sordid business, "daily contact with the things we loathe," will tarnish any but the brightest soul, and it takes sublimity to keep doing a trivial task and to "make it and the action fine."

The professional quality of Dr. Bolles' work was in many ways ideal. Anything careless or slipshod in his own work or that of others was abhorrent to him. A justifiable pride in neatness and workmanlike procedure possessed him. This was observable, not only in the field of operative surgery, but also in the manufacture of apparatus, in which he showed great skill.

But, what is rather remarkable, this impatience with bungling work did not interfere with his careful advice to and supervision of the work of some young physician whom he knew to be desirous of personally performing some operation with which he was not very familiar. It is much easier to do a thing yourself than to show someone else how to do it; but the latter course may be more helpful to one desirous of gaining facility, and many young men owe that great educational debt to Dr. Bolles. In general, his attitude toward younger doctors was one of support and sympathy. Patients never received from him the slightest word or look capable of carrying criticism of, or aspersion upon, their attending physician.

Another notable quality of the good practitioner was the atmosphere of confidence and trust which his coming brought into the sick-room. I was privileged to observe this on my first introduction to him, at a time previous to

* Read at the Boston Society for Medical Improvement, Nov. 20, 1916.

my entering upon medical study, and it struck me many times in the years that followed. His alert air, his small figure, crowned, in his later years, with a wealth of snowy hair, brought with it into the sick-room an assurance of help which communicated itself not only to patient and friends, but also to the puzzled and perplexed colleague who had asked for his counsel.

Dr. Bolles came of an ancestry that had been prominent in the battle against slavery, and he retained from his early associations a sympathy with the "under dog." Politically, this led him to be an independent, and no party could claim his support for a shuffling policy or a shady candidate. The same qualities that guided his political action, determined his theology. The extinction of his family line in the premature death of his only child, to whose education he had devoted himself with passionate eagerness, could not fail to cast a deep shadow on his descending years. Of this he never spoke, but its chastening effect upon his spirit was ever afterward evident to his friends. His religion was impatient of dogma and creeds. It was to the form of ecclesiastic authority that he seemed rebellious rather than to the essence of spiritual life. The same hostility to conventional authority, perhaps influenced his attitude toward education. The traditional curriculum of college appeared less effective than personal instruction by an enthusiastic teacher, who might offer the cup of knowledge, not to indifferent lips, but to those in which a real thirst for knowledge had been aroused. This, of course, is true, or would be true if inspired individual teachers were as plentiful as college professors.

Hospitality was a deeply seated instinct with him. He enjoyed the spirit of good fellowship in the medical clubs to which he belonged; he contributed generously, not only to scientific communications, but to the flow of humor and conversation about the board. He never appeared more pleased than when it fell to his lot to act as host. For years it was his habit in the summer season, when work was slackened and many of his neighbors were away, to be at home one night in the week to his medical friends. He called these "meetings of the unemployed," and sent out a general reminder by telephone or by word of mouth to all the doctors who weren't busy, to come. Delightful the memories now of those summer nights on the veranda of his pretty suburban home, the refreshments, the cigar smoke, the cooling drinks, the story, the jest.

One distinguishing and important thing about our friend was his extra-professional industry. He believed that every man should have an avocation as well as a vocation. He would have endorsed Phillips Brooks' words, addressed to business men, but equally applicable to doctors:

"I am sure that here I may claim, and you will allow, that for every business man's best good, it is desirable, it is necessary that he should have some intellectual or spiritual sympathy outside his business, which shall be the resource of his life, where he can go for the water of refreshment and life that will keep him from stiffening into a machine. . . some place of mental resort, some interest or study or liberal occupation of some sort to which his tired life may always resort, to find refreshment and recruit its spring. This is the evening element in life. There are multitudes. . . who have turned to drudges and drudged along in a work that was slavery to them, just for the lack of some such resort, some interest outside their business to which they could retire."

Botany was naturally one of his first pursuits, possibly suggested by his lectureship, as a young man, on pharmacology, in the Massachusetts College of Pharmacy, and later in the Harvard Medical School. He retained his intimate knowledge of, and his love for, flowers all his life. He spent much time in his garden, and maintained a keen rivalry with some of his fellow enthusiasts on the perfection of his blooms, on the precocity of his first crocus, or the lingeringness of his last rose of summer.

He was an admirable cabinet-maker and wrought some beautiful specimens of household furniture, such as the mahogany frame of an eight-day clock. He took very artistic photographs, developing and printing them himself. In his later years he acquired some fine lenses, microscopic and telescopic, and plunged with great eagerness into the wonders both of the small and the great. And so, with an ever-growing zeal and curiosity he filled up the full measure of his threescore years and ten.

Haec studia adolescentiam alunt, senectutem oblectant.

Such pursuits made more of a man of him, and perhaps not less of a surgeon. They represent, I think, a refreshing contrast to the narrow specialization of modern education. The old, broad-minded generation of doctors is disappearing,—the men who knew their classics, their Shakespeare, their literature, the men who stood for culture, for intellectual weight in their communities, as well as being mere doctors of medicine. Now medical pedagogy, if it requires as much as two years of premedical college work, insists that those two years include, besides a modern language, zoölogy, biology, physics, and two courses in chemistry. The man who is to be a navigator knows little of the chemistry and microscopy of a drop of water. The technical man of today is like a stone fort, rising sheer out of the water, with nothing about its base, no green banks, no trees, no flowers, nothing but the grim utility of its defence. A fort, perhaps, may be stripped down to its bare walls, but not a human life. Not long ago I saw a young man, a graduate with credit of our best technical school, who while lounging in a drawing-room, picked up a volume of Goethe and, after rather painfully making out the name, said "Let's see. He was a German, wasn't he?"

For many years there stood in the doctor's office, at his elbow as he wrote, a bust of Voltaire, upon which he liked to discourse. The shrewd, quizzical glance of the eye, the sneer of the lip and the mocking smile of the face amused and fascinated him. It appealed, perhaps, to one side of his own nature, seeing, as one must, the foibles and weaknesses of mankind. But his interest in the bust did not imply that he himself was a mocker at goodness. The crafty and cynical philosopher interested him as one addition to the multiform human types, the *comédie humaine*, which he was himself always studying. It did not mean that he looked out upon the world through those leering eyes. The purely surgical specialist, who sees a patient only for a brief space before and after the operation, may get no deeper vision into that man than the particular anatomical cavity which he explores. But Dr. Bolles was throughout his life also a general practitioner, and in that somewhat outgrown and scorned capacity he had an opportunity to see more of the great drama of human life, its strength as well as its weakness, its triumphs as well as its defeats. If he viewed its unlovely aspects with the eye of the cynic, he yet saw, on the whole, much more to attract his admiration and regard. No man could hold, as Dr. Bolles did, the personal regard and love of so many patients, unless he had himself recognized in most of them some spark of nobility.

He sometimes referred to himself jestingly as the slave of beauty, under which pleasantry he meant, I think, that he seriously worshipped beauty wherever he found it,—that beauty which clothed the flowers of the field that he so greatly loved, the beauty of art and of every skilled handicraft; the beauty of books and of their appropriate clothing; the beauty of the human form divine; of human life and the human soul.

And who of us all shall venture to deny that that great passion is now being fed, to a fuller satisfaction, in some realm of cosmic beauty?

II.

WILLIAM PALMER BOLLES.*

BY EDWARD WALDO EMERSON, M.D., CONCORD, MASS.

IT is a disappointment to me that I cannot present my memories of a dear and honored friend in informal speech—the more human way—rather than in writing, and that confinement from illness must prevent a better furnished and prepared paper.

I look back through forty-seven years to the daunting first immersion into anatomy by way of the difficult Latin-English of Quain, cleared by the admirable Holmes, and helped out by our first dissecting-room experience. At the afternoon recitation to Dr. C. B. Porter, the demonstrator, I trembled when called up, and retired mortified. But I noticed a small, hectic-looking student who answered the call coolly and recited accurately. His habitual preparedness mortified me, but, looking closely at him, I said to myself, "It is costing that man too much. He won't be alive two years hence." This was William Bolles, but he lived forty-six years more, a helper to others, through a busy life filled with manifold and interesting activities.

It was his second year of medical study, and I supposed him my senior. He soon made friendly advances, and invited me to his room, with one or two others, for mutual quiz. Then it turned out that he was the younger, but a remarkable student, faithful and exact. Learning that some illustrations were desired for a lecture, he drew, on a large scale, and painted with great skill and correctness what had been asked for. The reward for this service was the merest casual mention by the distinguished professor of "these paintings by one of your number—a Mr. Ball, or Bull—I forget the name."

Bolles was born in New London,—the old family home which he loved to visit was nearby in Waterford, Conn.,—and had the eager instinct for natural history, which probably saved him in his delicate youth, when he was not fitted for rough games. He knew all about flowers; was a good botanist all his life. Physics attracted his taste and skilful hand and true eye.

He made good use of the New London schools; did not go to college, but studied under the guidance of his father, whose interest in literature and science seem to have, in his son's case, served quite as well as the curriculum. He then, in accordance with general usage for medical students, studied and rode for a year with a local physician.

His father died, and William came to Boston to pursue his studies. Bolles's class took their degrees before the reform in the Harvard Medical School. All students paid for all the lectures for two years. These went on through the autumn, winter and spring. We could attend them in any order, and without guidance—surgery before anatomy, therapeutics before physiology, if we chose. In pathological anatomy the question whether "cheesy masses" or "miliary tubercles" were the real thing was unsettled. Microscopy was just introduced, a sort of elective; and physiology was taught didactically. Asepsis was unthought of in the hospitals, and antiseptics were being gropingly introduced. So Bolles, graduating under the ancient régime, but aiming at hospital and city practice, had to learn all these things as he went along, later.

Bolles's advance is very interesting. Not physically strong, with some weakness in the back while in the Medical School (he worked standing when he must, but studied lying down instead of sitting): without relatives or acquaintance in Boston society; not then striking in ap-

* Read at the Boston Society for Medical Improvement on Nov. 20, 1916.

pearance, and always very plainly clothed, he won general respect among the body of students: he had little chance for an appointment as house officer at the Massachusetts General Hospital, which usually were given then to youths who "came of kenned folk," but he passed his examination at the City Hospital and *won* his appointment on the surgical side; on leaving the hospital he took a summer vacation, to recuperate his health, as surgeon on a sailing vessel, studied for one winter in Vienna, and soon after his return, was placed on the surgical outpatient staff at the City Hospital; soon after, he received the appointment of Professor of Materia Medica and Botany at the new Massachusetts College of Pharmacy. He settled in a pleasant and then semi-rural part of Dorchester. Practice began to come in, and his eager mind, and hands of manifold deftness, knew well how to fill the hours. Before long his professional intelligence, fidelity and skill brought to him, still young, the appointment on the active surgical staff of the City Hospital. This position he held with advancing credit for twenty-five years. Retired on the age-limit, he remained a consultant. Happily for his neighbors he remained an admirable general practitioner until within the last few years. This choice, of course, prevented him from advancing to highest rank as a modern surgeon. His was a history of success fairly won by character and brave, cheerful effort.

Dr. Bolles early made a home for his widowed mother and younger brother. After the death of the former, he married Miss Martha B. Sumner, who survives him. The untimely death of their son, an only child, was a grievous blow to them.

But Bolles was not only a doctor. He was a natural craftsman, self-taught, in many directions. He had a work-shop with the best tools and apparatus. There, long before breakfast, he was happily at work. When I began practice, I received a gift of his carved splints of many kinds, of original and excellent device, such as could not be bought; finger and thumb-splints, too, of brass. One day he showed me a set of instruments of precision in minutest weighing and measuring, his own handiwork. He melted silver and fashioned it into artistic shapes. Always a good microscopist, in his later days he bought a telescope and studied the skies with delight. His skill with pencil and paint-brush has been mentioned, but photography, in which he was a master, interested him more than art. His photographs of flowers could hardly be surpassed, and in landscape he had a good sense of composition, yet with regard to old masters and Renaissance painting, it pleased him to play the Philistine. On his first visit to Antwerp and Brussels he wrote to me of a new and unlooked-for interest he had found in the galleries—dermatological. Rubens' rich renderings of Rubeola, Scarlatina, Roseola, *et id omne genus*, in goddesses, nymphs and warriors, he revelled in, in a highly amusing letter.

At different times, later, he spent three summer vacations in Europe, surely finding more than mere medical interest in art, but he was not of a romantic temperament, and his microscopic eyes wanted more than color-generalizations. Similarly, in his eagerness for nature and science, he found no time for poetry or novels.

The busy years of faithful and successful practice sped by, leaving each its crown of respect and gratitude as his hair silvered. He looked healthier and even younger in his later days. His kindness was overflowing, and "he believed the best of everybody."

Last winter, Dr. Bolles decided to visit California for the first time, his wife accompanying him. They took one of those rose-embowered cottages under the beautifully folded mountains of Santa Barbara. There was really no winter; the paradise of that place was a revelation to them, the flowers and trees all new. They found old friends there, and made new, and the climate favored the excursions afield which he loved. On the 18th of last March, at the end of a happy day out of doors, Dr. Bolles had a sudden heart-attack, and in a few minutes received his release.

I like to end this sketch of William Bolles with our old master's, Dr. Holmes's, answer by the majestic shades of the brave healers of the past as to the rewards of our profession:

"List while they speak:
In life's uneven road
Our willing hands have eased our brother's load;
One forehead smoothed, one pang of torture less,
One peaceful hour a sufferer's couch to bless,
The smile brought back to fever's parching lips,
The light restored to reason in eclipse,
Life's Treasure rescued like a burning brand
Snatched from the dread destroyer's wasteful hand.
Such were our simple records, day by day,
For gains like these we wore our lives away.
In toilsome paths our daily bread we sought.
But bread from Heaven attending angels brought.
Pain was our teacher, speaking to the heart,
Mother of pity, nurse of pitying art:
Our lesson learned, we reached the peaceful shore
Where the pale sufferer asks our aid no more,—
These gracious works our welcome, our reward;
Ye served your brothers; ye have served your Lord!"

Society Report.

COLLEGE OF PHYSICIANS OF PHILADELPHIA, SECTION ON MEDICAL HISTORY.

MEETING OF TUESDAY, NOV. 21, 1916, 8.15 P. M.

DR. FRANCIS F. PACKARD in the Chair.

PALAEOPATHOLOGY.

ARNOLD C. KLEBS, M.D., Washington, D. C.: The term "palaeopathology" may well be used to designate that larger group of variegated efforts which are likely to promote our understanding of the injuries and diseases of man in the light of past records or actual traces. It is desirable to confine under the aegis of this term only the observations made directly on the human remains from earlier epochs of the human race and embracing data both positive and negative. There has been opened recently at San Diego, California, what is probably the richest palaeopathological collection; credit for which is due to Dr. Hrdlicka. It is quite proper that these new efforts should be considered as forming a part of historical research in medicine and not be set apart as prehistoric. The close of that so-called prehistoric era has been put back to that remote time when, at the end of the fourth glacial epoch, man's mind was already found to express itself in readable terms of art and industry. This means a net gain to human history of some 25,000 years. We may justly regard Rudolf Virchow as the founder of palaeopathology. Its establishment as a special branch of research dated from the archeological survey undertaken by the Egyptian Government in 1908 and 1909, carried out particularly by Drs. Marc Armand Ruffer, G. Elliot Smith and Wood Jones. By immersion into certain solutions Dr. Ruffer was able to soften and swell some of the mummified tissues so that they could be embedded in paraffin, cut and stained. The cellular structure of some of the tissues could be well made out, as for instance the glomeruli and tubuli of the kidney, the alveoli in the lungs, the coats of the intestines and striated muscle fibres. Some of the more notable pathological findings were atheroma of the arteries, pulmonary anthracosis, abscesses of the kidney, pleural and peritoneal adhesions, vesical and renal calculi. The bone findings also revealed conditions which may shed light on so-called rheumatic and tubercular bone diseases. Without such circumstantial evidence as the type of mummification, posture of the body in the grave, its orientation, the geologic and cultural strata, objects of adornment, clothing, etc., the excavated pathologic specimens have slight scientific value. Chiefly Egypt and Peru have furnished the more important specimens. We can trace in these relics the primitive state of man, when his fate was sealed almost exclusively by a fatal injury or old age, to that of the more complex nosology of our days. Sometimes we can even observe the evidence of early therapeutic efforts, of surgical operations and of prolonged nursing. It may be stated upon good authority that the prehistoric people, on the whole, were free from rickets, tuberculosis and syphilis. The most frequent bone disease seems to have been arthritis and osteitis deformans. Gout, chemically determined as such, was seen in only one case, that of a mummy from an early Christian cemetery. In Egypt the evidences of osteitis deformans go back to predynastic periods. The alterations are characterized by evidence of inflammation and the superposition of new bone tissue, regular stalactites such as are rarely found nowadays. The bone changes present striking resemblances to tuberculous bone disease, but closer investigation shows absence of distinct necrosis and medullary foci and the presence of features which exclude the diagnosis of tuberculosis according to our morphologic and bacteriologic notions of the disease. The lumbar column is most frequently affected with the spondylitic lesions and practically no archaic man seems to have been entirely exempt. The derivative for "old age" in hieroglyphic writing, it may be interesting to mention, is the picture of a deformed man (Ruffer). Pathologically it is the intensity of the process rather than anything else that distinguishes the ancient disease from the modern. Under the term of osteoporosis structural alterations in cranial bones of young individuals, apparently without counterpart in modern pathologic experience, have been frequently encountered in Egypt and Peru. Two forms are discernible; one, characterized by circumscribed patches of porous osteophytes; in the other, the porous condition prevails without marked osteophytic proliferation, but also without evidence of bone necrosis. The teeth of the ancient Egyptians, similar to those of archaic people generally, are usually found in a state of excellent preservation. In skulls from later burial grounds, however, changes are noted resembling conditions of dental caries seen today. The effects of injuries can be observed in ancient bones in great variety. The Egyptian findings show an almost entire absence of sepsis and a pronounced tendency to natural repair. A high degree of skill is revealed in those fractures which had to be set artificially. From the 5th Dynasty we know that splints were applied in fractures and some were still *in situ* on the mummies. The collection of ancient surgery, based on the Hippocratic treatise on joints, and commented upon by Apollonius of Kitium (1st century B. C.) is preserved in a precious illustrated Greek codex of the 10th century in Florence. Among the striking findings of Ruffer and his associates are the calcified ova of the schistosoma haematobium and the arterial lesions. Bilharziosis, still observed in Egypt, can probably be identified with the aaa disease of the Ebers and Brugsch papyri. There is evidence of the astonishing frequency of arteriosclerosis. In some cases Ruffer found the arteries transformed into rigid "bony" tubes. The arterial coats and annular fibers after decalcification and staining were clearly distinguishable in these 3000-year-old specimens. The etiology of arteriosclerosis is of interest in the light of these venerable testimonials. Injury and disease have played an important part in the history of mankind and in the concatenation of specialized scientific inquiries palaeopathology forms a precious link which well merits widespread attention.

The search for evidences of a primitive therapeusis can bring forth material which may throw a light on the earliest origins of medicine and on questions about the spread of culture over the earth.—questions which just now have again been agitated by the sensational conclusions drawn by Dr. G. Elliot Smith, who holds that all evidence of culture in the various lands of the earth can be traced to the

direct influence of emissaries from that great civilization built up in Egypt between 4000 and 900 B. C. The theory is based upon striking resemblances of certain rather bizarre cultured features (the heliolithic culture-complex) encountered in all these widely separated districts. These resemblances are indeed striking and forcibly suggest an interrelation of these people during some remote epoch; but it is difficult to understand by what trick of logical acrobatics Dr. Smith arrives at the summary denial of the possibility of spontaneous, independent rise of a primitive culture based on the innate tendency of man to improve his surroundings, to avoid or alleviate suffering or to correct physical defects.

DISCUSSION.

DR. JOSEPH SAILER: In studying prehistoric life in reference to the human race one is conscious of the extreme paucity of definite material and of the very elaborate superstructure of deduction which has been built therefrom. On the other hand, there are certain rather broad general principles that seem to be pretty obvious. As Grant has shown, we have among us, as probably we all have observed, reversion types to these primitive men. We see types resembling, at least, the reconstructed prehistoric man that has been attempted by delvers in prehistoric matters. The beginning of medicine I think must have occurred with the beginning of the appreciation of form. I can imagine that history must have begun in very much the same way and that the members of the Greek race had a keen perception of form. The tropical climate, which gave little opportunity for the preservation of the human body in prehistoric time, I think may explain why we have almost nothing relating to infection. Dr. Klebs has given us valuable data which may be used as a working hypothesis in guiding us to the discovery of new data upon this which is perhaps an academic subject but one which at least to me is of extreme interest.

BURKE AND HARE, AND THE PSYCHOLOGY OF MURDER.

DR. CHARLES W. BURR: The lives of Burke and Hare furnish a clinic in criminal psychology. Their vocation was the murdering of people in order to sell the bodies to teachers of anatomy. While not originators of the trade, they were, so far as I know, the only wholesalers. As early as 1752 Helen Torrence and Jean Waldie were executed in Scotland for a similar crime. "Body snatching" began in Edinburgh from scientific necessity. Every now and again there were outbursts of popular anger on account of the desecration of graves and about 1725 Monro's anatomical establishment was destroyed by a mob. Not only students, but sometimes physicians deprived the worms of their food. Until body snatching became associated with murder the lawmaking body regarded the offence much less seriously than the people. Burke and Hare confessed that they had committed sixteen murders between the twelfth of February and the first of November, 1828. They seem to have been led into the business by accident. Burke, his mistress, Helen McDougal, Hare and his wife, or she who figured as such, lived together in Edinburgh, where Hare had a vagrants' boarding house. Donald, a harmless old man who boarded with him, died, owing Hare four pounds. Hare and Burke took the body from the coffin furnished by the parish authorities and sold it to Dr. Knox's assistant, William Ferguson, later Sir William, and Dr. Thomas Wharton Jones, receiving a fee of seven pounds ten shillings. This was "easy money" and, being men of criminal instincts, they continued murder as a business. Their method was to make their victims helplessly drunk and then suffocate them; wounds on the body might raise unpleasant questions. One murder which more than all others aroused the people of Scotland was that of "Daft Jamie," a familiar figure on the streets, harmless and happy. He was suspicious of no one past boyhood. Therefore, he was readily persuaded to drink, and was then smothered. The murder that led to discovery was that of a woman named Docherty. It was decided that Burke and M'Dougal were the two against whom evidence was strongest. Hare was accepted as a State witness; Burke was convicted, and M'Dougal given a verdict of "not proven." The period was not one of indecent slowness between verdict and execution. The trial had begun December 24, 1829, and the time of execution was on the 28th of the following month. Our friends, the eugenists, ought especially to approve the method in its prevention of the propagation of bad stock. It is very possible that England's relative freedom from crime against the person during the Victorian era was in part due to the fact that previous generations had let a good bit of blood and so purified the citizenry. On the morning of the execution, the crowd numbered twenty or thirty thousand,—not a serious-minded, quiet crowd; but a merry mob waiting to be amused, yet bloodthirsty withal. Burke seems to have been the most self-contained man there. He walked, news reporters say—though they, perhaps, were no more accurate than reporters of today—with steady step. Cries of satiated vengeance greeted the fall of the drop. The conduct of these people is a good example of what today we call mob psychology. Burke being dead, the mob wanted vengeance on Dr. Knox, and murder was prevented only by the police. Professor Monro found the brain of Burke normal, but George Combe and other phrenologists found that his character was just what the bumps indicated. The most interesting question is, What manner of people were these four who made a business of murder? Murderers are more often the offspring of weak than of wicked people. Helen M'Dougal seems to have been regarded as the principally bad influence in Burke's life, but whether it was the old excuse, "The woman tempted me and I did eat," or whether she was the stronger character, remains unsolved. Something in the woman held Burke,—that strange affinity of protoplasm, quite as real, quite as resistless, as chemical affinity. Of Hare at the time of Burke's trial, it was said he possessed not the slightest moral perception of the enormity of his conduct. Men are born, they do not become, murderers. The one quality I have found lacking in all the sane murderers I have examined, is the moral sense,—the realization that they owe a duty to others. We do not know the cause of the absence of the moral sense, as we do not know the cause of its presence. That it is entirely distinct from intellect, I am convinced, because I have seen men far above the average mentally who were entirely without it. Further, so far as my experience goes, nothing creates this moral sense in him who has it not. I have more than once seen murderous criminals whose environment in childhood and youth was of the best, yet who went their own terrible way. The only cure is death, and the best treatment for them and humanity, execution.

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ERNEST GREGORY, *Manager*,
126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

A VICTORY IN THE FIGHT AGAINST VENEREAL DISEASE.

THE physician's attitude towards venereal disease has ever seemed an anomalous one to many. Knowing as none does better the ravages of this scourge, many propagandists seem to think that they should show it no quarter, and spare neither time nor effort to drive it from the face of the earth. And yet the general practitioner regards it neither with the rabid hate of the minister, the Puritan, or the reformer, nor yet with the good-natured cynicism of the man-of-the-world, the club man, or the rounder. He sees behind and beyond the obvious features of venereal disease, and knows that the problem is far more extensive than appears on the face of it. He realizes that its ramifications extend in every direction into our social state, and that any attempt to legislate the thing out of existence—to tear it up by the roots, as the over-zealous reformer would do—would result in disturbances in many remote and little suspected places, and would perhaps do more harm than good. The doctor's attitude, then, towards the efforts which are put forth from time to time to make venereal disease a notifiable, and even a punishable affair, is not apt to be one of sympathy. Such a method of attacking the problem is very much like punishing a tubercular patient because someone contracted the disease from him,—a procedure the logic of which is superficial, to say the least.

However, there is not likely to be much difference of opinion on the general proposition that there should be an earlier recognition of this disease, more efficient isolation, and more active treatment. Whether this can be accomplished or not by making such diseases notifiable is a question. There is a serious attempt in England to give this a trial, although the British Medical Association is against it. That organization believes that before such a step is taken, provisions should be made for all venereal cases where the patient is indigent, to receive treatment free, that is, competent and thorough treatment. Otherwise, such a law would act merely as a feeder for charlatans.

One of the chief obstacles to the handling of these diseases in England has been the fact that they have been construed as coming under the clause in the Insurance Act where illness is caused by misconduct. The National Conference of Friendly Societies, which met in Liverpool recently, adopted a resolution, the essential point of which is that no member of a sickness benefit should be deprived of benefits if incapacitated from work through venereal disease. This marks a step forward, which cannot help but be beneficial in the fight against venereal disease. The placing of these diseases in the same category as other infectious diseases will help remove some of the stigma now attached to them, and will encourage the prompt report of such cases, thus preventing many others from becoming infected, securing earlier cure for the patients themselves and hastening the day when this insidious foe to the public weal shall be rendered innocuous.

THE MASSACHUSETTS HEALTH INSURANCE COMMITTEE.

A LARGE committee of persons who are in favor of the general principles of health insurance has just been formed, including members drawn from various parts of the State. Dr. David L. Edsall, Professor of Medicine at the Harvard Medical School, is chairman. The following extract from a statement prepared by him will indicate the purpose and scope of this body.

"A group of persons in favor of the general principle of health insurance have organized a committee drawn from various parts of the state, largely representing the groups most directly involved, with the purpose of helping to direct into wise lines any legislation that may be enacted. Some of those who are already on the committee strongly favor the Young bill, now before the legislature. Others are not yet ready to support any detailed proposal, but are studying the subject with a favorable attitude toward the principle. Persons who have either of these attitudes are on the committee, and membership does not involve giving support to any individual proposal that is yet made or that may be made. The object is rather to increase knowledge of the subject, to remove misconceptions, and to further the development of measures that will be fair to all concerned. There is much promise that health insurance will, more largely than any measure now before the public, promote cooperation and sympathy between employers and employees, and would better the economic condition of working people by the protection from distress provided in times of illness. With this it would offer opportunity for greatly improved health conditions. The committee is being formed with its central purpose a desire to further the public welfare by focusing upon the subject the attention of those who are competent to advise from various angles."

The committee includes over seventy persons —employers, employees, physicians and others interested, the membership being as follows:

David L. Edsall, M.D., Boston; Vanderpoel Adriance, M.D., Williamstown; E. A. Bates, M.D., Springfield; Miss Mary Beard, Boston; H. W. Belcher, Boston; March G. Bennett, Boston; Charles Sumner Bird, East Walpole; W. P. Bowers, M.D., Clinton; Arthur N. Broughton, M.D., Jamaica Plain; Richard C. Cabot, M.D., Boston; Miss Ida M. Cannon, Cambridge; C. C. Carstens, Brookline; Alison G. Catherton, Beverly; Mrs. E. A. Codman, Boston; Herman M. Comerford, Boston; B. Preston Clark, Boston; Grafton D. Cushing, Boston; D. A. Darling, M.D., Cambridge; Michael M. Davis, Jr., Cambridge; Robert C. Davis, Fall River; Hilbert F. Day, M.D., Boston; Henry S. Dennison, Framingham; Miss Mary W. Dewson, South Berlin; F. B. Percy, M.D., Brookline; Rev. L. M. Powers, Gloucester; Mrs. George W. Perkins, Boston; Oliver Prescott, New Bedford; Mrs. William Lowell Putnam, Boston; Hon. J. J. Rogers, Lowell; William Z. Ripley, Newton Centre; Mrs. William Z. Ripley, Newton Centre; William H. Robey, Jr., M.D., Boston; Milton J. Rosenau, M.D., Brookline; H. G. Smith, Quincy; W. V. Spaulding, Worcester; H. G. Stetson, M.D., Greenfield; P. E. Truesdale, M D., Fall River; Robert M. Washburn, Worcester; Frank A. Woods, M.D., Holyoke; Robert A. Woods, Boston; Wade Wright, M.D., Boston; Robert L. DeNormandie, M.D., Boston; Carroll W. Doten, Cambridge; George H. Ellis, Newton; Arthur B. Emmons, 2d., M.D., Dover; Michael J. Flynn, Boston; Felix Frankfurter, Cambridge; Robert F. Foerster, Cambridge; Mrs. Herbert J. Gurney, Wollaston; Mrs. J. Livingston Grandin, Jr., Boston; Miss Mabel Gillespie, Boston; Dudley M. Holman, Boston; Mrs. Frank Hallowell, Boston; Garry DeN. Hough, M.D., New Bedford; Arthur M. Huddell, Boston; Peer P. Johnson, M.D., Beverly; Fred R. Jouett, M.D., Cambridge; Martin Joyce, Boston; Stanley King, Boston; Louis E. Kirstein, Boston; Charles Kroll, Boston; Maynard Ladd, M.D., Boston; J. E Lamoureux, Lowell; Roger I. Lee, M.D., Cambridge; Henry Lefavour, Boston; James A. Lowell, Boston; Harry Linenthal, M.D., Boston; Rev. Alexander Mann, Boston; Adolph Leve, Boston; Ignatius McNulty, Boston; Walter Miner, D.M.D., Boston.

A NOTICE.

THE members of the Massachusetts Medical Society are reminded that after March 1 the JOURNAL will be discontinued to those whose dues to the Society remain unpaid. Upon payment of dues, the sending of the JOURNAL will be resumed; but, though every attempt will be made to supply them, there may be difficulty in securing a complete file of back numbers for all.

MEDICAL NOTES.

THE NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.—The second annual report of this Society, organized for the purpose of studying the causes of blindness, advocating measures to eliminate these causes, and disseminating knowledge on the subject, records a year's work of hopeful activity. They state, in summing up their statistics, that they have appealed to the eye and ear of the public through press articles, pamphlets, exhibits, lantern slides, and lectures, having published 300,000 pieces of literature, contributed to magazines and newspapers a score of articles (most of which have been copied many times), produced two new exhibits of five panels each, sent their exhibits into 46 cities and towns in 21 states, added about 150 subjects to their list of lantern slides, delivered or arranged for the delivery of 100 lectures, visited and served in person 10 states, corresponded with practically every state in the Union, and answered inquiries from several European countries, from South America, the Philippines, China, South Africa, India and Australia.

MENINGITIS AT NAVAL TRAINING STATION.—Report from Chicago on February 22 states that there have recently been thirteen cases and five deaths of cerebrospinal meningitis in the United States Naval Training School at Lake Bluff, Illinois.

EUROPEAN WAR NOTES.

HARVARD SURGICAL UNIT.—On Wednesday, February 21, the latest contingent of the Harvard Surgical Unit sailed from New York City on the *Andania*, under the command of Dr. Hugh Cabot of Boston. This contingent, a majority of whom will serve for the duration of the war, is to be stationed, like its predecessors, at the 22d General Hospital of the British Expeditionary Force in France. The party consisted of fifteen nurses and the following physicians and surgeons: Dr. Thomas J. Blackshear, Jr., Dublin, Ga.; Dr. E. Stanley Bridges, St. John, N. B.; Dr. Eldon D. Busby, Ottawa; Dr. Pineo Chase, Hyannis; Dr. Ernest G. Crabtree, Brookline; Dr. Thomas D. Cunningham, Brookline; Dr. Ezra S. Fish, New York; Dr. Francis B. Grinnell, Charles River Village; Dr. Jefferson W. Hawthorne, North Cambridge; Dr. Don J. Knowlton, Greenwich, Ct.; Dr. Fabyan Packard, Allston; Dr. Albert O. Raymond, Brockton; Dr. George C. Shattuck, Boston; Dr. Oliver H. Stansfield, Worcester; Dr. William P. Sweeny, New York; Dr. Leonard M. Van Stone, Brookline; Dr. George Watt, East Providence; Dr. Edward S. Welles, Boston; Dr. David E. Wheeler, New York; Dr. Harry W. Woodward, Boston, and Dr. John S. Young, St. Louis.

Dr. David F. Ford, of New York, who sailed on the *Tuscania*, Feb. 16, is to join the party in England.

Of these all are Harvard graduates except the following: Thomas J. Blackshear, Jr., Atlanta Medical School; Jefferson W. Hawthorne, University of Michigan; Albert O. Raymond, Tufts College; Oliver H. Stansfield, University of Pennsylvania; William P. Sweeny, Albany Medical College; David E. Wheeler, Physicians and Surgeons, New York; John S. Young, Barnes Medical College, Kentucky; Ezra S. Fish, University of Pennsylvania.

WAR RELIEF FUNDS.—On March 3 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	$289,961.89
French Wounded Fund	199,907.97
Armenian Fund	158,978.53
British Imperial Fund	90,140.15
French Orphanage Fund	85,998.66
Surgical Dressings Fund	76,266.47
Polish Fund	61,773.27
French Phthisis Fund	13,214.04

BOSTON AND NEW ENGLAND.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Feb. 24, 1917, the number of deaths reported was 295, against 277 for the same period last year, with a rate of 19.91 against 18.99 last year. There were 31 deaths under one year of age, against 51 last year, and 87 deaths over 60 years of age, against 72 last year.

The number of cases of principal reportable diseases were: diphtheria, 79; scarlet fever, 40; measles, 108; whooping cough, 2; typhoid fever, 3; tuberculosis, 47.

Included in the above were the following cases of non-residents: diphtheria, 14; scarlet fever, 4; typhoid fever, 2; tuberculosis, 6.

Total deaths from these diseases were: diphtheria, 10; whooping cough, 1; tuberculosis, 22.

Included in the above were the following deaths of non-residents: diphtheria, 5; tuberculosis, whooping cough, 1.

The Massachusetts Medical Society.

COMMITTEE OF 23 ON HEALTH INSURANCE.

By direction of the President the Committee of 23 on Industrial Health Insurance, appointed by the Council, at its meeting, February 7, 1917, will meet at the Boston Medical Library, Tuesday, March 13, 1917, at 12 o'clock noon, to organize, choose officers and transact business.

WALTER L. BURRAGE,
Secretary of the Society.

Correspondence.

INDUSTRIAL HEALTH INSURANCE: A REJOINDER.

New York City, February 27, 1917.

Mr. Editor:

I am wondering why in a discussion of any problem it is at all necessary to assume the very personal and somewhat offensive tone of Dr. Whitehill's letter in your issue of February 22nd. Since the Doctor for some reason prefers to refer to me repeatedly as "Dr." Rubinow, and also comments upon the fact that the letter in your JOURNAL carried the "M.D." next to my signature, while in the newspapers the same letter appeared without such designation, it appears necessary to make the following two statements:

1. I did not at this time, nor do I as a rule sign my letters with the "M.D." or any other title, and the "M.D." in your JOURNAL was attached by someone without my knowledge, probably by the printer, with a fine appreciation of uniformity.

2. I do possess a perfectly legal M.D. from the N. Y. University Medical College (1898) of which I am not, however, making any use, and also a Ph.D. from Columbia University, so that I may be referred to as Dr. Rubinow quite properly without any quotation marks.

The question Dr. Whitehill raised and upon which I tried to throw some light of information, is a statistical more than a medical one. Though Dr. Whitehill may not know, I have some 17 years of statistical experience, and am quite used to handling statistical problems. The accuracy of my computation, and not the legitimacy of my medical degree, was the real question at issue.

In his latest letter Dr. Whitehill shifts to an entirely new statistical statement, this time referring to maternity care, and assumes that $35 will be necessary for each maternity case to pay for fourteen days in a hospital. It is reasoned, therefore, that not enough money will be left for medical service. Of course, the assumption that all the 92,978 cases of birth will receive hospital treatment, or need it, is quite at variance with facts. I wonder if it has occurred to Dr. Whitehill that such an arrangement would require at least 3,566 hospital beds for obstetrical cases alone, even if we were to figure on these beds never having a day's rest to cool off—and also a similar number of cribs.

It happens, Mr. Editor, that statistics is a discipline of its own, perhaps commensurate with medicine in its dignity as a profession. A degree of M.D. does not necessarily disqualify one from ever becoming a statistician, but neither is it sufficient to qualify one for the practice of statistics. Within the last year the States of California, Kentucky, Nevada and Massachusetts have called upon me for professional advice. I don't see, therefore, why this should alarm Dr. Whitehill so. But of course, I think it but fair that I be judged only by statements made by myself, orally or in writing, and not by anyone else's statements or computations.

May I add a few lines concerning the monograph by Dr. F. Friedensburg, entitled "Practical Results of Workingmen's Insurance in Germany," recommended by Dr. G. E. Whitehill in a letter in your issue of February 15, 1917. This is a well-known attack upon the whole German Social Insurance System. The English translation of this pamphlet was paid for, published and lavishly distributed by private casualty insurance companies. Having been a physician for a few years, I still remember enough Latin to quote:

"Timeo Danaos et dona ferentes." To be fair to Dr. Friedensburg's point of view, I may also suggest Professor Ludwig Bernhard's monograph, "Undesirable Results of German Social Legislation," the title sufficiently characterizing the contents. Again, this has been translated, published and lavishly distributed by the same casualty companies.

But neither Friedensburg nor Bernhard represent the point of view of the vast majority of German students. Those who read German may read the works of G. Zacher, F. Zahn, P. Kaufman (Schadenverhutendes Wirken in der deutschen Arbeiterversicherung), Ewald (Lehrbuch der Sozialer Medizin), to mention a few only. I do not find insurance companies translating and distributing these works.

Especially is Dr. Ewald's work of some 800 pages important. Dr. Ewald is a professor of a German medical school. He is very militant in his defense of the profession and often severely criticizes certain details of the German law which fail, in his opinion, to offer sufficient protection to the physician. But at the same time he is enthusiastic in his praise of the general social results of health insurance and its effect upon the prosperity and health of the German nation.

It is this way: If either Friedensburg or Bernhard were very progressive men, who believed in social legislation, then any criticism of the German Social Insurance system would have deserved most careful consideration; as, for instance, any criticism made by Professor Ewald deserves. But both of these men object to any progressive tendency. They are thorough reactionaries in spirit. And they say things which reactionaries would be expected to say.

If we object to the importation of European institutions, why import European pamphlets and European arguments? What do American professors say? The California Social Insurance Commission was determined to find out the attitude of American students of economics and social problems. It sent out many letters of enquiry to all the members of the American Economic Association and received some 675 replies. Of these, 587, or 87%, were in favor of social insurance, 61, or 9%, were non-committal, and only 27, or 4%, were opposed to it. Of the 587 in favor of social insurance, 450, or 77%, advocated a compulsory system. Some 453 replies indicated their order of preference between the different branches of social insurance: 270, or some 66%, selected health insurance as their first choice, and 117, or some 25%, as their second choice. These facts are stated in the report of the Social Insurance Commission (p. 280-283).

Supposing now that someone were to ascertain the name of the opposing 4% and quote their opinions. Would they be representative of present American thought on the subject? No more is Dr. Friedensburg or Professor Bernhard of the prevailing German thought.

I. M. RUBINOW.

INDUSTRIAL HEALTH INSURANCE: AN APPRECIATION.

Greenfield, Mass., February 24, 1917.

Mr. Editor:

In common with other physicians throughout the State, I have watched with some concern and a bit of anxiety the trend toward some sort of Health Insurance in Massachusetts, and as a constant reader of the BOSTON MEDICAL AND SURGICAL JOURNAL, I have also been interested in your attitude toward this very important question, and I desire to commend your stand; for, so far as I can determine, your attitude has been one of fairness based, I believe, upon the recognition of the fact that there is a possibility that some form of industrial health insurance is needed in this State, but that before it should be given sanction by statute, the matter should be threshed out very carefully by the medical profession and also among the laity, as far as they are competent to discuss it; and I trust because some members of the profession are evidently misinterpreting your attitude, that you will not permit yourself to be unhorsed but will continue your effort to present both

sides until such time as a more thorough canvass of the subject will have shown what initial project is wise for the medical profession, as a whole, to endorse.

The matter is of such very great importance to everybody concerned, not only the medical profession, but all sorts of lay people, that we should approach the subject with as much of an open mind as the nature of our work and the possible menace to our profession of ill considered legislation will permit.

Yours very truly,

B. P. CROFT.

EPILEPSY AND ELIMINATION.

Mr. Editor: Boston, Mass.

Since the publication, by Dr. C. A. L. Reed, of Cincinnati, of his findings in the intestinal flora and blood of epileptics of a specific micro-organism, not found in non-epileptics, which he called the "Bacillus epilepticus," there has been so much interest and inquiry in regard to this aspect of epilepsy that I think it would be fitting if you could call attention, through your columns, to a letter published in the *Journal of the A. M. A.* of to-day, which might well be overlooked by the casual observer, in which, as a result of more recent work of which he speaks, Dr. Reed makes the following statement:

"In view of this finding, I feel it my duty at once to request that so much, but only so much, of my previous contributions as relate to the identity of a presumably specific organism and to the existence of an actual bacteremia in these cases may be considered as withdrawn. I make this request with my apologies for what now seems to have been premature publication, and for which I alone was responsible."

Dr. Reed still believes that epileptics should be "treated as cases of *general* convulsive toxemia of intestinal origin," and hopes that still more intensive study of these cases will eventually reveal the specific etiology.

In this hope I am sure that all of us who are actively interested in this most important and distressing symptom-complex will heartily agree, especially those who believe that it is by way of the intestinal tract that the condition should be most strenuously attacked. By this I do not mean a diet of castor oil, or even salts; but rather as a result of careful study of the abnormal function so frequently present an attempt to correct it by such means as may be appropriate to the given case, in order to attain *normal* elimination. I remain, sir,

Yours very truly,

February 24, 1917. GEORGE CLYMER, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION, FOR THE QUARTER ENDING FEBRUARY 28, 1917.

CONTRIBUTIONS.

Dr. L. Waller Deichler, Philadelphia, Pa. (Second contribution.)	$ 3.00
Previously reported receipts	7,958.26
Total receipts	$7,961.26

Previously reported disbursements:

1625 standard boxes of food @ $2.20	$3575.00
1274 standard boxes of food @ $2.30	2930.20
353 standard boxes of food @ $2.28	804.84
Total disbursements	$7,310.04
Balance	$651.22

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburgh, Pa.

SOCIETY NOTICE.

NEWTON MEDICAL CLUB.—The next meeting of the Newton Medical Club will be held at the Newton Hospital on Monday, March 12, at 8.15 P.M. Speaker, Dr. John Lovett Morse. Subject, The Treatment of Acute Nephritis in Children.

HENRY W. GODFREY, M.D.,
Corresponding Secretary and Treasurer.

RECENT DEATHS.

JOHN E. WADSWORTH, M.D., who died on January 29, at Skowhegan, Maine, was born at Fryeburg, Maine, in 1875. He was a graduate of Dartmouth College and received the degree of M.D. from Bowdoin Medical School in 1896. In 1900 he settled at Skowhegan, where in 1901 he established the Somerset Hospital. He was chairman of the Maine State Board of Registration of Nurses and visiting physician to the Maine State Reformatory for Women, at Skowhegan.

SETH LOUIS LLOYD, M.D., died at his home in Williamstown, Mass., on January 7, at the age of 53. Dr. Lloyd was born in Utica, N. Y. He entered Union College but left after two years to take a medical course in the University of Maine, from which he graduated in 1886. In 1888 he began his practice in Williamstown and later opened a sanatorium at Sand Springs, in that town. His service was sought in civic affairs and he filled many positions of local prominence. He is survived by his widow.

WILLARD HALL ROGERS, M.D., of New York City, inventor of the "water electrode," used by physicians in giving electrical treatment to patients, died at his home recently. He was born in Georgetown, Del., in 1850.

DAVID LAWRENCE, M.D., a retired physician of Boston, died of pneumonia at his home in Revere, on February 9. Dr. Lawrence was born in New Brunswick in 1829. He lived for many years in Dresden, Me., and had spent the last thirty years of his life in Boston, practising his profession the greater part of the time. He is survived by four sons.

EDWARD LUTHER PARKS, M.D., a Fellow of the Massachusetts Medical Society since 1877, died at the Boston City Hospital, February 8, aged 67 years. He was born in Boston, May 14, 1849, was educated at Phillips Exeter Academy, and at Harvard College from 1868 to 1871, receiving his M.D. from the Jefferson Medical College in 1874. He practised in Philadelphia from 1874 to 1877, when he settled in Boston, where he engaged in general practice for ten years, then going abroad. On his return he gave special attention to diseases of the eye. He was at one time a member of the First Corps of Cadets. He was not married.

ALFRED OWEN HITCHCOCK, M.D., born in Fitchburg, son of the late Dr. Alfred Hitchcock, died in Fitchburg, January 20, 1917, after a two weeks' illness of broncho-pneumonia, aged 74 years and nine months. He entered Dartmouth College in the class of 1863 and later enlisted in the 53d and 57th Regiments, Massachusetts Volunteers, serving in the Civil War. He rose to the rank of captain, and later was brevetted major. He later served on the staff of Gen. Nelson A. Miles. He was formerly a member of the Massachusetts Medical Society, a former City Physician and Chairman of the Board of Health of this city, and for years was chairman of the Board of Examining Surgeons for Pensions. He was a member of Post 19, G. A. R., Loyal Legion and the Masons, also for many years physician to the county jail in this city.